THE RAILWAY GAZETTE, July 4, 1947
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TRANSPORT BILL THROUGH COMMITTEE STAGE IN HOUSE OF LORDS, *p.* 3
UNION TRIBUTE TO RAILWAY EFFICIENCY, *p.* 3 RAILWAYS IN CHINA, *p.* 13.

THE
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A Journal of Management, Engineering and Operation
INCORPORATING
THE Railway Engineer · TRANSPORT · The Railway News

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FRIDAY, JULY 4, 1947

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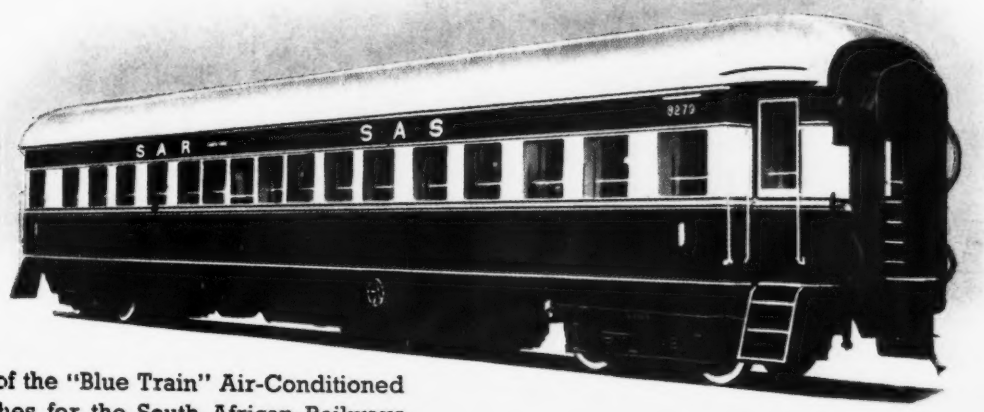

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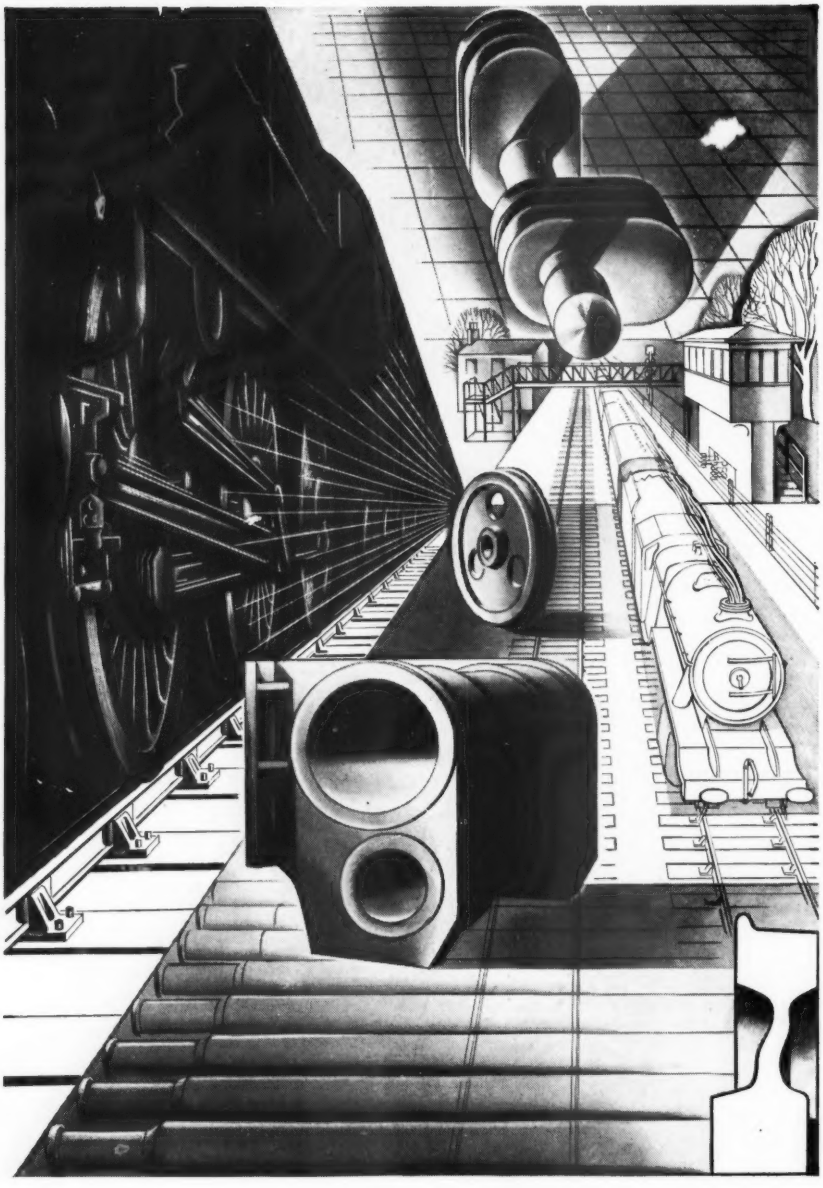

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The Fourteenth International Railway Congress

THE fourteenth session of the International Railway Congress Association came to a successful conclusion last Saturday, and the delegates dispersed on a series of alternative excursions lasting several days. In our next issue we hope to publish the "conclusions" arrived at by the five sections. Great credit is due to the Swiss Executive Committee for the success of its plans for the comfort and entertainment of the delegates and their ladies, who together numbered well over a thousand. We did not meet any delegate who had also attended the previous Swiss Congress held at Berne in 1910. If there were some, they cannot fail to have been impressed as we were by the great changes and improvments effected in thirty-seven years by the Swiss Railways and associated undertakings. There has been criticism from time to time regarding the utility of the International Railway Congress and the fact that its "conclusions" are not binding on anyone. In our view the great value of the quinquennial congress is the contacts it makes possible for railway officers of every nation and the facilities afforded for studying transport conditions in the country in which the congress is held.

* * * *

Nationalisation and National Recovery

During a debate in the House of Commons last week on shortages of consumer goods, Mr. Oliver Lyttelton, Conservative M.P. for Aldershot and a prominent industrialist, urged the Government to break out of the vicious circle of controls and to take a risk by cutting exports of consumer goods, and so give the workers incentive to produce more by letting them buy more. He expressed the view that nationalisation was delaying national recovery, and he feared that nationalisation of iron and steel would "put the half-nelson" on industry. Governmental controls had resulted in too many officials; too many officials had reduced the number of producers; and the consequent reduction of production had led to the need for more controls. That was a vicious circle. Sir Stafford Cripps replied that he could not hold out hope of any immediate or spectacular change in our present position. Until we had been able to overcome the wartime effects on manpower and materials it would not be possible to rectify the shortage of consumer goods.

* * * *

British Export Trade Research

A luncheon was held last week after the second annual meeting of the British Export Trade Research Organisation, at which Sir Stafford Cripps was the principal guest. The President of the Board of Trade emphasised the need, in present trading conditions, for a scientific approach to market research, and said that this could be obtained through B.E.T.R.O., working in close co-operation with the Export Division of the Board of Trade; he warned his audience that the present sellers' market was disappearing very quickly, and said that in certain commodities there was already a buyers' market. After the next few months, British industry would not find export markets as easily as hitherto. A stage had been reached at which we were on the verge of a period when we should have to rely not only on the quantity and quality of our production, but also on our power of salesmanship. On the financial side, Sir Stafford Cripps said, it seemed certain that B.E.T.R.O. would operate for some years at a loss, and the Government, which wholeheartedly supported the organisation, was prepared to pay half the losses incurred in any year's operation over the next five years, subject to a total liability and on the assumption that Parliament would vote the necessary money.

* * * *

Transport Bill Opposition Meeting

A strong protest against the passage of the Transport Bill was made at a very large meeting which took place in Central Hall, Westminster, on June 26 under the auspices of Aims of Industry, Railway Stockholders Association, and the Road Haulage Association. Lord Woolton presided, and said that the meeting had been called to protest against this Bill because it took from many workers the opportunity to do for the country a job which they believed they could do in Great Britain's commercial life. He believed, and those who supported him were convinced, that the Government would fail

to give efficient transport service, just as it had failed to give efficient food service, or the houses in which to live. Sir David Maxwell Fyfe said that road hauliers should have their men and resources ready for the end of nationalisation, and Mr. Peter Thornycroft said that notwithstanding the progress which the Transport Bill was making through the House of Lords, he believed that the battle for the freedom of transport was beginning and not ending. If half the energy which had been put into the Transport Bill had been devoted to improving rolling stock, railway organisation, and road transport, costs today would be falling instead of rising.

* * * *

Home Railway Traffic Receipts

For the first time since the beginning of September, 1946, the return of traffic receipts issued by the four main-line companies and the L.P.T.B., in respect of the four weeks ended June 15, showed a slight increase. The improvement was £107,000, and arose from the fact that although coal and coke receipts at £4,211,000 were £501,000 greater than in the same period of last year, passenger revenue at £16,084,000 was only £204,000 less, and merchandise takings at £7,554,000 were lower by only £190,000. In both cases the declines in passenger and merchandise takings were below the general level of recent weeks. Details of the changes are shown in the table below, together with the aggregates for the 24 weeks of the current year compared with the like period in 1946:—

FOUR WEEKS ENDED JUNE 15, 1947

	1947 £000	1946 £000	+ or − £000	Per cent. + or −
Passenger	16,084	16,288	−204	−1·2
Merchandise	7,554	7,744	−190	−2·4
Coal and coke	4,211	3,710	+501	+13·5
Total	27,849	27,742	+107	+0·4

AGGREGATE FOR 24 WEEKS OF THE YEAR

	1947 £000	1946 £000	+ or − £000	Per cent.
Passenger	80,915	86,324	−5,409	− 6·3
Merchandise	40,844	48,638	−7,794	−16·0
Coal and coke	24,757	22,253	+2,504	+11·2
Total	146,516	157,215	−10,699	− 6·8

The comparison with the previous year is affected by increases in rates and charges which have occurred in the more recent period, and the small increase in the latest return has to be considered in conjunction with the fact that it is estimated that by the end of the year there will be a deficiency in the Railway Control Account of some £32,000,000 on the present basis of costs and charges.

* * * *

Railways to Develop Chinese Resources

China is faced with the necessity not only of repairing the extensive damage to her railway system caused by war and civil conflict, but of building new lines to enable the commercial potentialities of the country to be realised. A beginning was made in 1927 towards constructing an adequate railway network, but 10 years later, on the outbreak of the Sino-Japanese war, much of the work had to be suspended, and some lines were destroyed to prevent their use by the enemy. After V-J Day the process of development was resumed in the face of many difficulties. Certain new railways were completed even during hostilities, but the Ministry of Communications still has some 8,700 miles of new line on its five-year programme, the effect of which will be to open up new territories and improve connections between existing railways. The historical development of Chinese Railways and their plans for the future are reviewed elsewhere in this issue. The author, Mr. H. H. Ling, who was a former Director-General & Chief Engineer of the Canton-Hankow Railway, draws attention to the natural resources which may be developed to the benefit of the country when adequate transport is available.

* * * *

Developing Colonial Resources

Mr. Creech Jones, Secretary of State for the Colonies, announced in the House of Commons on June 25 that the Government proposed to establish a Colonial Development Corporation, intended to establish or assist enterprises in the colonies designed to increase their productive capacity. The corporation will have total borrowing powers of the order of £100 million, and will operate on commercial principles. It is proposed that the legislation establishing this corporation should be combined with that for setting up the corporation to take over the groundnut project established in East Africa by the Minister of Food. Both undertakings are likely to increase the demands on the transport facilities in the areas concerned. In this connection it will be recalled that proposals are on foot for complete amalgamation of the Kenya & Uganda Railways and the Tanganyika Railways (see our issue of June 13), and that railway construction projects in East Africa include a new link between Tanganyika Northern and Tanganyika Central systems, which would have the effect of providing continuous communication between all the railways of Kenya, Uganda, and Tanganyika. In connection with the groundnut project, a commission acting for the Ministry of Food already has prepared a report recommending immediate work on the construction of a new port and connecting railway at Mto Mtwara Harbour in Tanganyika.

* * * *

American Railways Purchase Pullman Assets

Approval of the Interstate Commerce Commission at length has been given to the financial arrangements involved in the taking over by 56 railways in the United States—practically the whole of those which until now have made use of Pullman sleeping or dining car service—of the sleeping car business of the Pullman Company. This buying group intends, at some date before the end of 1948, either to establish a sleeping car service corporation of its own, or to sell its properties to an outside corporation; in the latter event the duration of the pooling arrangement may be limited. For the Pullman stock, a total of $40,202,482 is being paid, and it is being distributed between the purchasing railways in agreed proportions determined by the extent to which each has availed itself of Pullman service hitherto. By far the largest shares are those of the Pennsylvania and New York Central, 16·18 and 15·50 per cent. respectively, followed by the Southern Pacific, Union Pacific, and Santa Fe, with 8·55, 6·00, and 5·61 per cent. respectively. These five railways alone take over more than one-half the total stock. Although the Robert R. Young group—the Chesapeake & Ohio, Pere Marquette, and Nickel Plate—opposed the taking over of the Pullman sleeping car service by the railways, they decided to become parties to the purchasing arrangement if it received the approval of the I.C.C., and thus are included. For the present, therefore, and until the consummation of the transfer plan, the Pullman Company is continuing to operate the cars, on a pooled profit-sharing basis with the railways, and with a guarantee by the railways to make good any operating losses that Pullman may incur.

* * * *

Southern Railway Boulogne Services

On Tuesday, July 1, the Southern Railway resumed its Folkestone-Boulogne service, which was interrupted when the war started, and on the same day inaugurated a new Dover-Boulogne service for the transport of motorcars. To mark the occasion, which will be referred to more fully in a later issue, officers of the company and representatives of the Press accompanied the vessels on their first trip. One half of the party sailed in the *Isle of Thanet* from Folkestone and the other half in the *Dinard* from Dover. The latter vessel recently has been reconstructed as a motorcar carrier and is now the largest ship in the Southern Railway fleet engaged in this work. The whole party returned to Dover in the *Dinard* the same evening. On arriving at Boulogne the visitors were met by Mr. W. E. Newbold, Agent for the Southern Railway at Boulogne, and afterwards received a cordial welcome from Boulogne officials, headed by M. Lacroix, President of the Chamber of Commerce. Luncheon was served in the rebuilt Gare Maritime, the official opening of which by the President of the French Republic will take place on July 12, and in the afternoon the visitors were taken on a motor-coach tour of Boulogne.

* * * *

Motorcar Shipments to the Continent

Several firms exporting motorcars to the Continent claimed last week that the Southern Railway had suspended shipments temporarily because of the pressure of tourist business. Representations were made by the firms concerned to the Ministry

of Transport, and the matter was then taken up with the Board of Trade and the Southern Railway. Later, the position was clarified in a statement issued by the railway company, which explained that, because of certain shipping difficulties, there was a need to impose a temporary stoppage of trade cars by the Newhaven-Dieppe route. Special steps have been taken already to increase the shipping space available for trade motorcars to the Continent during the remainder of the summer, and we understand, also, that the shipping difficulties in the present instance were caused, not so much by the tourist traffic, but by the recent French railway strike, which had resulted in an accumulation of uncleared goods at ports, and by the unexpected arrival from motorcar manufacturers of an increased number of cars for export.

* * * *

What is a Long Rail?

The increasing use of welding to join rail lengths into longer sections, and thus reduce the difficulties associated with the rail joint, takes two entirely distinct forms in the U.S.A. This is by reason of the fact that the standard length into which rails are rolled in that country is but 39 ft., which involves no fewer than 270 joints in the two rails of a mile of single line. Much of the rail welding in the U.S.A. consists of joining two standard 39-ft rails to make a 78-ft. rail, which eliminates half the rail joints but results merely in the effective use of a 78-ft. rail, which is not greatly different from the 60-ft. rail that is standard in Great Britain. Lengthy sections of continuously-welded rail are still relatively scarce in America, but some of the installations have been in service under close observation for lengthy periods, and valuable experience has been gained therefrom. Last week we referred in some detail to the latest methods adopted by London Transport to meet the difficulties of the rail joint, and this week we publish a summary of American experience that should prove of wide interest.

* * * *

Union Tribute to Railway Efficiency

DURING his evidence before the Railway Wages Court of Inquiry recently, Mr. J. Benstead, the General Secretary of the National Union of Railwaymen, gave a concise but very impressive list of the economies effected by the railway companies between the time of amalgamations under the provisions of the Railways Act, 1921, and the outbreak of war in 1939. Although his reasons for giving this unsolicited testimonial to the railway managements can be appreciated readily, some of the facts he mentioned are of considerable interest.

After pointing out that to achieve one of the objects of the Act it was inevitable that, in the drastic re-organisation schemes, duplicate services covering largely the same areas would require to be abolished, he said that this had been done on a large scale. Similarly, separate stations, depots and offices had been combined. New and standard methods were introduced; rationalisation and mechanisation—in their fullest sense—were practised. Every practical mechanical device was brought into play and economies effected whenever and wherever possible. New, heavier, and speedier locomotives and passenger trains were built: bigger freight vehicles constructed, and more powerful engines introduced to haul heavier freight trains. Timetables were speeded up and revolutionary changes made in permanent way construction and maintenance. Electrification schemes were extended and the growth of electrical knowledge and its application to railway signalling and communications produced a radical change in methods of working.

On the permanent way, he stated, improved methods and intensification of working enabled a much greater length of line to be maintained in a higher state of efficiency with nearly 10,000 less men in the permanent way grades. As a result of the improved methods of working, the general speeding up and the use of more modern processes and appliances, he claimed that the output per man had been increased and the labour value of the permanent way staff was greater than it had ever been.

He pointed out that in the signal and telegraph department the application of science had revolutionised signalling methods. The introduction of new devices had added enormously to the responsibility and skill of the signalling and telegraph staff. Turning to the continual reduction effected by the railway companies in the number of signal boxes, he said that in 1923, no less than 51,129 miles of single-line track (including sidings) were open to traffic and 28,081 signalmen were employed, representing an average of 1·82 miles of track for each signalman. In 1938 there were 52,357 miles of single-line track, but only 23,429 signalmen, representing an average of 2·23 miles of track for each signalman. On this ground he claimed that signalmen's responsibilities have increased, on the average, by nearly 23 per cent.

* * * *

Transport Bill Passes the Committee Stage

THE Committee stage of the Transport Bill ended in the House of Lords on Thursday, June 26, and after it has passed the Report stage (which it is understood is fixed for July 8 and 9) and the Third Reading, it will be sent back to the House of Commons for consideration to be given to the amendments which have been made to the measure by the peers.

On June 23, after a large number of drafting amendments was agreed, a new clause was introduced after Clause 80—against the wishes of the Government, although no vote was taken—requiring that the passenger road fares charged by the Commission should be approved by the appropriate licensing authority for public service vehicles. The Government accepted an amendment, however, that Clause 81, which gives the Minister power to exempt the Commission from certain statutory provisions as to charges, undue preference, and so on, should be deleted from the Bill. An amendment was also accepted, in principle, to Clause 82, providing that the Minister of Transport should have a statutory duty to consult the Transport Tribunal before he increases rates and charges in the transitional period. On Clause 83, an amendment was accepted providing for the right of appeal against any decision of the Commission to increase exceptional rates.

A spirited debate ensued in connection with Lord Balfour of Burleigh's proposal that a new clause should be inserted after Clause 89, providing that every existing holder of railway stocks whose present security is convertible into British Transport stock should receive, in addition to the compensation provided by the Bill, a ten-years' annuity of 1 per cent. of the nominal amount of the present compensation. For the Government, it was pointed out that this would involve an increase in the compensation by £100 millions, payable in ten annual instalments of £10 millions, and eventually the amendment was withdrawn. The Government agreed, however, to accept in principle an amendment by Lord Balfour of Burleigh placing on the Commission the obligation to prepare and publish annual returns and statistics in respect of each of its principal activities. It also agreed to see whether anything could be done to meet an amendment moved by Viscount Simon requiring the Commission to keep separate trading and profit accounts for each of its activities so that the financial results of each section could readily be seen.

On June 25 the Government refused an amendment designed to restrain the Commission from being able to make it a condition of employment that any employee should become a member of a particular trade union. Considerable discussion followed the moving of an amendment by Lord Balfour of Burleigh designed to give all railwaymen similar protection in respect of loss of employment or worsening of position, or loss of, or diminution of, emoluments or pension rights, arising from the operation of the Transport Bill, as they had under the Third Schedule to the Railways Act, 1921. He was supported by Lord Portal and several other peers. Although the Government indicated that it was not prepared to accept it, it indicated that, before the Report stage, consideration would be given to an alternative proposal by Viscount Swinton suggesting that the regulations to be made by the Minister of Transport relating to compensation for worsening of conditions of employment, etc., should be laid before Parliament in draft, so that they could be discussed, if necessary, before the final regulations are issued.

On June 26 a Government amendment was accepted providing that, for the purpose of compensation, the net annual profit for the three years ending 1948 should be

taken into account, instead of the three years immediately preceding the date of transfer to the Commission of a public service undertaking. Strong criticism was aroused, however, by a Government amendment to the ninth schedule to the Bill, in connection with the definition of the average net annual profits of road undertakings for the purpose of assessing compensation for cessation of business. The amendment provided that in ascertaining profits or losses, the amount of any liability to excess profits tax or profits tax should be taken into account. After several peers had complained strongly the Government agreed to hold over the amendment until the Report stage, pending examination of the points which had been raised. Various amendments to the schedules to the Bill were then dealt with.

* * * *

U.S.A. Freight Trains

MR. S. KIP FARRINGTON, JR., is well known in America as an authority on fishing, shooting, and bird life. He is also reputed to have seen more railway operating than many a professional railwayman. Mr. Farrington delights to ride on locomotives, in officers' inspection cars, and in cabooses, as the Americans term their freight guard's vans. One outcome of this unorthodox travel was a book entitled "Railroading from the Head End." Now Mr. Farrington has written a companion volume called "Railroading from the Rear End."* This is based on impressions formed while travelling with freight trains on 32 of the principal lines in the United States, usually in the caboose with the conductor. In a short introduction, Major-General C. P. Gross, Chief of Transportation, U.S. Army, 1941-1945, says that the book completes "a picture packed with the romance that power, movement, and action always bring." With unflagging energy Mr. Farrington has reeled off more than 400 pages of crisp prose. Operating at high pressure is also the keynote of many of the fine photographs, reproduced in his book, especially when pusher engines are shown helping freight trains over steep grades, and emitting astounding volumes of smoke.

The Santa Fe appears to be Mr. Farrington's favourite railway. Six of his 35 chapters deal with different aspects of its work—centralised traffic control, the communication system, the carrying of green fruit, the inspection of the line, potato "specials," and the movement of wheat. The Southern Pacific is praised for its working of military traffic from the Pacific ports. There is a vivid account of snow fighting on the Milwaukee, and the author was thrilled when he rode in the caboose behind 180 iron-ore wagons on the Great Northern, for the trains between the ore mines and Lake Superior ports are the heaviest and longest in the world.

The Great Northern is also the principal grain hauling railway in the Northwest. Mr. Farrington's way of telling this fact gives a good idea of his literary style. "The harvest that springs from the black soil of North Dakota alone is in an amount that beggars description. A golden sea inundates the rolling prairies. You travel down it for endless miles—100, 200, 300 miles and more. The beauty of it remains with you always. The great North Dakota wheat bin. Your speeding train seems lost in this world where the yellow horizons never cease, and yet these twin bands of silver shape the destiny of the flood of wheat that comes like a tidal wave from the land of plenty." The Great Northern, in fact, has a shrewd estimate of the volume of wheat to be moved in any period, together with a day-to-day record of the number of wagons available and the number of wagons loaded. Each week a note of the wagons forwarded goes to the Association of American Railroads, which publishes a statement of the total number of wagons loaded with grain and grain products on all the U.S.A. railways. So the tidal wave is measured by a weekly statistic.

Most of the principal railways of the Eastern and Pocahontas districts come in for notice. The "Niagara" class of New York Central locomotives has a chapter to itself, as has the New York Central milk service. A good deal of space is allotted to the great coal lines, the Chesapeake & Ohio and Norfolk & Western, both working more than 22,000 net ton-miles per route-mile per day. The fast freight trains of the Baltimore & Ohio, known as 97's, are described, along with the Erie's fruit specials, and Mr. Farrington has a lot to say about the Boston & Maine. Apparently the greatest railway of them all, the Pennsylvania, does not arouse his enthusiasm, though it is mentioned in a chapter on Inductive Train Communication and in one or two other passages. The book is large enough as it is. Any railway enthusiast who can obtain a copy will enjoy the perusal of its breezy paragraphs and admire its illustrations.

* "Railroading from the Rear End." S. Kip Farrington, Jr. Coward McCann Inc., New York, and Longmans, Green & Co., Toronto, Canada. Price $5

* * * *

Railways and the Winter Coal Prospect

RECENT news from the coalfields has done nothing to alleviate the impression, which is widespread in industry, that next winter may see an even greater disturbance to production than occurred in the early months of this year. From the transport viewpoint it is clear that the prospect is far from good, and the City Notes of *The Times* recently gave an interesting analysis of the position which may arise. Unless overall production of coal next winter is to be much less than last, the five-day week will mean a higher traffic peak, that is to say, as we have already pointed out in these columns, the same weight of coal will have to be got away from the pitheads in a shorter time.

The inference from this is that more wagons might be needed; but the railway wagon position is still serious. The effective decrease in numbers compared with before the war is about 140,000, or 12 per cent. The general distribution of coal, therefore, may suffer, and unless coal stocks can be built up sufficiently during the winter, which on present indications is highly improbable, there might be a repetition in the early months of next year of the troubles on the lines experienced early this year. *The Times* points out that although imports of coal would relieve the winter traffic strain if they could be brought in during the next few weeks, it is not always appreciated that in practice they would tend to aggravate it if coal had to be moved from port to internal distributing centres during the difficult winter months. Moreover, there is no certainty that any large tonnage of coal from abroad will be obtained; still less that it can be got before the winter. The conversion of locomotives from coal to oil firing is still held up for the supply of equipment, and it is very doubtful whether much real progress will have been made before the onset of winter.

It is possible that some relief may be obtained from the curtailment of passenger travel, although the present limited train services are likely to be fully taxed from now until the end of August. There has been some indication that the public has taken heed of the warning that railway travel will be difficult this summer, but the effect of the 10 per cent. cut in services compared with a year ago will be seriously felt. That cut was made to save coal, but this contribution will be small in relation to the overcrowding involved. The amount actually saved, it is calculated, will be about ½ cwt. a mile for a passenger train carrying some hundreds of persons.

On the other hand, costs of operation continue to rise, and their level now is more than double that in 1938. The deterioration of the financial position resulting from the fall in Government traffics in 1946 has continued at an accelerated pace this year. It is unlikely that 1947 net revenues would have equalled those of 1946, even if the early months of this year had not been specially difficult, but it has been estimated that this year probably will close with a net revenue deficit in the control account against the fixed rental of £32,000,000, and any concession to the latest claims of the railway trade unions would add to that deficiency. Apart from this, it is understood that the Government has made up its mind that some adjustment of railway charges must be made to reduce, if not to close, the existing revenue gap.

It may be decided to follow the formula of the Transport Bill and, taking "one year with another," to meet the deficiency only in part this year so as to soften the impact on transport users. To cover this present deficiency in the control account in full, together with the maximum claims of the trade unions, would involve, according to current estimates, an increase in charge from the present level of 128 (taking pre-war as 100) to 177. Even if none of the wages claims was conceded, the

"lift" would be from 128 to about 140. The average fare for all types of passenger travel is now 1·1d. the passenger-mile (compared with 0·7d. in 1938) and the average freight rate for all types 1·7d. the ton-mile (against 1·3d. before the war). Last year the railway companies proposed to the Rates Tribunal that whatever increase of charges there might be should be equally distributed over all types of traffic. But the Minister of Transport, it is thought, is more likely to argue that the increase should fall on passengers rather than freight. This would entail a continuing differential between the two classes of traffics, though not necessarily the existing one.

* * * *

Speed Estimating by Locomotive Drivers

FOR a variety of purposes, not the least of which is the observance of essential permanent way restrictions, it is necessary for a locomotive driver to form a reasonably accurate estimate of the speed at which he is travelling. As speed indicators are not generally adopted on British locomotives, he must do this by other (and less accurate) means. In practice, it is known that a driver must have had experience of a particular section of road for some considerable time, and also to be observant, before he can form anything like an accurate estimate of speed from the swing of his engine, the velocity at which standing objects are passed, or the sound of the rails, etc.

The instinct by which speed is estimated is acquired only after years of experience, and it is advisable to use some precise method to assist in acquiring the necessary power of judgment. The telegraph poles alongside the line, for instance, are usually placed from 60 to 70 yd. apart where the road is straight, and thus form a ready means whereby the distance travelled by the engine in a given time may be determined. As there are 1,760 yd. in a mile, taking the distance between the pole at 60 yd. will give 29·33 poles to the mile, so that after allowing for slight curvatures or deviations in the road, 30 poles will be a fairly accurate and very convenient unit on which the calculations may be based. It is, therefore, obvious that, if the train is travelling at the rate of 60 miles an hour, which equals one mile a minute, 30 poles must be passed in that time. From this we obtain the general expression that double the number of poles passed in a minute gives the speed in miles an hour. Under certain conditions of weather and locality, the poles will be invisible or otherwise not available, and some other means of measuring the rate of speed will be necessary.

The number of rail lengths traversed in a given time provides a ready basis of calculation. Rails 60 ft. (20 yd.) long are now the standard practice on British railways, although the older 45-ft. (15-yd.) rails are still to be found on many main lines, and experimental lengths of 120-ft. (40-yd.) rails have been laid. With 60-ft. rails, there are 88 rail lengths to the mile; and with 45-ft. rails, 117·3 rail lengths. Hence, with 60-ft. rails:—

88 rail lengths a min.	=	60 m.p.h.
44 " "	=	30 m.p.h.
22 " "	=	15 m.p.h.

If divided up with 88 rails and 60 sec. as constants, it will be found that the number of rails passed over in 41 sec. is approximately equal to the speed in miles an hour.

The relation between the number of rails and the number of telegraph poles may be found by dividing the average distance between the poles by the length of the rails. Thus, with poles 60 yd. apart, and 60-ft. (20-yd.) rails, there would be three rail lengths between each pole; and with 45-ft. (15-yd.) rails, four rail lengths.

As the number of poles per mile, and the length of the rails, vary in different localities, some general rule adaptable to all circumstances will be appreciated. It will be noted that the number of seconds bears a constant ratio to the number of poles or length of rail; hence, when travelling at 60 m.p.h., each pole, when there are 30 to the mile, represents 2 sec. in time.

From this, it is evident that, whatever the spacing of the poles may be, the number of poles passed in as many seconds as the poles are yards apart (or the number of rails passed in as many seconds as the rails are yards in length) multiplied by 2, will give the speed at which the engine is travelling in miles an hour. Thus, by using the equal yards and seconds, any speed may be calculated approximately, such as is shown here:—

Poles	Yd. apart		Sec.	M.p.h.		Poles
30 at	60	passed in	60	= 60	or	30 × 2
30 "	65	"	65	= 60	or	30 × 2
30 "	70	"	70	= 60	or	30 × 2
			or			
Rails	Yd. long		Sec.	M.p.h.		Rails
15 at	20	passed in	20	= 30	or	15 × 2
10 "	20	"	20	= 20	or	10 × 2
5 "	20	"	20	= 10	or	5 × 2

This formula may be used for 45-ft. rails, or other rail lengths, which still survive on certain branch lines. For example, with 45-ft. (15-yd.) rails, 20 rails at 15 yd. long passed in 15 sec. = 40 m.p.h. (or 20 × 2).

It should be emphasised that complete familiarity with the spacing of the telegraph poles or the length of the rails is essential before the estimation of speed by these methods is attempted.

* * * *

Power Supplies for Signalling

FIFTY years ago the signal engineer usually was not concerned with anything electrical, for such electrically-worked apparatus as was in any way associated with signalling was almost invariably the province of the telegraph superintendent. A great change, however, was about to begin, and signs were not wanting towards the close of last century that signal engineers would have to become also electrical engineers.

When the first power-signalling installations were brought into use, accumulators, periodically charged, or, in the case of automatic signalling, primary batteries of a type able to give a constant discharge, were frequently relied on, although on the London Underground lines distinct signalling current supply was provided. Accumulators for point motor operation have continued to enjoy favour, and as late as 1926 a paper on power supplies for signalling was read by the late Mr. M. G. Tweedie before the Institution of Railway Signal Engineers, in which the question was discussed solely from the point of view of using secondary or primary batteries.

It was, therefore, helpful to that Institution to have read before it at a recent meeting a paper by Mr. L. R. Insley, in which present-day problems and conditions were reviewed. These are not simple. The gradual spread of "grid" supplies, bringing a welcome degree of availability of electric power scarcely envisaged by early signal and telegraph engineers, has brought many technical problems, some not yet solved, while on others different opinions obtain. To these have recently been added some of, let us hope, a temporary kind, caused by the conditions left by the war, and expressed for the signal engineer in fall in voltage, reduction of frequency, or even total loss of supply, not as a result of the always possible breakdown, but of overloading.

The extension of power facilities has enabled the signal engineer to consider the provision of colour-light distant and intermediate signals where they would not have been contemplated before, and other refinements; but in all these things he is faced with the need for ensuring, not only reliable working in the safety sense, but a continuity of service which will practically eliminate delays to traffic. Standby or reserve power supplies are, therefore, in most cases imperative, and may take the form of trickle-charged accumulators, alternative main supplies, or even engine-driven generating sets for important installations. For certain classes of work primary battery standby can be adopted successfully. The equipment used for this service itself calls for careful design and installation, to ensure that when the usual source of energy fails there is no doubt about the dependability of the standby.

Mr. Insley's paper analysed the classes of conditions which could arise and the principles used in dealing with them in L.M.S.R. practice; it also described the types of equipment found most suitable on that system. It served, not only as a valuable record of practice, but to emphasise how extensive is the influence exerted on signal engineering by the advances made in electrical engineering itself. This is affecting, as Mr. Insley stressed, the very design of signalling devices, no longer called on to operate on the current values once set by the primary battery period, with the result that we are able to use today equipment which is more robust, and often can be given a better margin of safety in working, and yet be produced at less cost than formerly.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The Scottish Railway Network

The Railway Club, 57, Fetter Lane,
London, E.C.4. June 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. J. F. Pownall proposes in your June 20 issue that his 68-mile direct route from Glasgow to Dundee should be covered "within the hour," which—at 58 minutes—would entail a start to finish 70 m.p.h., inclusive of some 1 in 41 up out of Glasgow and 1 in 66 drop into Dundee, and service slacks for two miles over the Tay Bridge and over his 1½-mile trans-Forth bridge. The clocking of such a run over a route, which after all is not quite like the line from Paddington to Swindon, would indeed make glad the heart of Mr. Cecil J. Allen.

Mr. Pownall's belief—in these days when railways are losing money—that we are on the verge of a boom in railway construction is a bright spot of optimism that shines like a good deed in a naughty world.

Yours faithfully,
KENNETH BROWN

A Museum of Railway History

64, Martyrs' Field Road,
Canterbury. June 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. Stocks, in his letter printed in your columns on June 20, suggests that certain branch railway lines are worthy of the attention of the National Trust. This is certainly an original and unusual idea, and, to my mind, it is a very good one. Obviously, the number of lines so selected can be only a few, and it follows therefore that there must be a standard by which to judge their merits. I should like to suggest that a line be considered for inclusion if it fulfils the following conditions:—

(1) That it has a long history, or historic significance.
(2) That it passes through pleasant surroundings.

Naturally, opinions will differ over which lines ought to be considered. I should like to state the claims of the first branch line for the interest of the National Trust, namely, the Canterbury & Whitstable Railway. This line is, of course, now the S.R. Whitstable Harbour Line. In defence of this claim, may I examine its merits under the two conditions as set out above?

First: The line dates from 1825, and was first opened in 1830. It follows substantially the same route as originally laid. It includes in its course one of the oldest railway tunnels in Britain (in fact, one of the oldest in the world), and terminates at the harbour, which was built in the early 1830s. It was the first railway in England to convey ordinary passengers regularly by steam, preceding the Liverpool & Manchester Railway in this respect by several months.

Second: This line passes through woodlands and farms, and all who can remember passenger traffic on the line will agree that the trip "through the woods" in spring or summer was very enjoyable.

At present the Southern Railway runs a goods service only, and in spite of petitions from the people of Whitstable, it is unlikely that passenger traffic will be restored. The difficulty is that the famous tunnel is too narrow for standard coaches, and all the small coaches that formerly used it have been broken up. I think it would be interesting if a train of old-fashioned coaches of pleasant appearance (but with comfortable modern upholstery and springs) could be run on the line in passenger service. I have no doubt that such a train would pay its way, not only as an object of interest for railway enthusiasts, but more especially as a means of filling the great need of railway transport between Canterbury and Whitstable. That this is a real need is clearly seen by a glance at the queues that form daily for the Whitstable buses, which start from outside Canterbury West Station.

Mention of attracting enthusiasts calls to mind another point in Mr. Stocks's letter. He says that "the ideal solution to the storage problem for preserved locomotives is on station platforms . . ." and in this I most heartily disagree with him.

With a centralised collection, it will be worth while making a long trip to see it all. But how many people are going to consider a long trip to see one engine worth while? Scattering of these interesting railway relics and locomotives enables *less* people to enjoy them *all*, and a limited number to enjoy *some*. Whilst many people would think it worth while to make a long journey for the purpose of *travelling* in an old-time train, there would be few who would undertake the same journey just to *see* it.

Yours faithfully,
ARTHUR G. WELLS

Prospects of Indian Railway Officers

India. June 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your article "Prospects of Indian Railway Officers" in the May 9 issue makes interesting reading so far as officers of all Indian Government Railways are concerned, but to subordinates of those same railways the picture is not so colourful, for at no stage is any mention made that it is the intention of either the British Government or the Governor General in Council, on behalf of the Indian Government, to pay any compensation to subordinates of these railways. Yet it has been made quite clear that warrant officers, sub-conductors, conductors, and so on, of the military departments definitely will be paid compensation.

Since there are only approximately fifty such covenanted subordinates, including those who have been promoted to the Official Grade, it would be interesting to know why this distinction has been made; is it because they bear that ill-coined title of "subordinate"? Or is it that in such a gigantic change-over they inadvertently have been left out of the scheme? If the latter, it would be interesting to know how *The Statesman* of India published an editorial a few days after the Viceroy had made his announcement on April 30, that *all* staff who had contracts with the Secretary of State for India and the Governor General in Council would be compensated.

It may be of interest to know that a good many of these subordinates and officiating officers are on the 45-47 years of age mark, and as such it will not be easy for them to obtain similar posts in the U.K.; neither will their provident funds have reached a mark where they could retire comfortably. Yet an officer of 45 years of age would receive the sum of £3,750 as compensation, plus his provident fund and so on.

The point may be raised that the new governments may wish to retain these subordinates, but if there is no security for officers, there will be much less for subordinates, and therefore all the more reason for them to be compensated. As your article points out, "Mr. Attlee's reply to Mr. Butler was not altogether convincing" when Mr. Butler put a question in the House of Commons regarding there being a likelihood of two governments arising from the transfer.

In conclusion, when this subordinate staff can be overlooked for compensation, it is more than likely they will be overlooked when the question of repatriation is brought up, particularly those who are not due for passages until after June, 1948.

Yours faithfully,
MERCENARY

Publications Received

Les Chemins de Fer en France (The Railways of France). By Robert Barjot. Paris, 1947. Marcel Didier, 4 and 6, Rue de la Sorbonne, Paris. 9 in. × 6¼ in. 65 pp. Illustrated. No price stated. The inclusion of a volume on railways in a series dealing with other matters as diverse as French literature and church architecture, indicates the importance conceded to rail transport as a factor in the social and economic life of the country. In a book of this size, the treatment of the various subjects—historical development, permanent way, motive power, signalling, and so on—is necessarily brief, but the author has chosen his facts so as to present an informative and up-to-date picture. Adequate justice is done to such well-known contributions to railway science as the improvement of steam locomotives by rebuilding, locomotive testing at Vitry, and signalling methods.

In relation to the use of diesel trains for accelerated services, M. Barjot concludes that experience in France confirms the American view that speed pays, and that where such services have been provided initially by railcars, it has been necessary later to put on diesel train sets in order to deal with expanding traffic. This sounds more like French opinion of pre-war days than the view recently expressed by the French reporter at the International Railway Congress that passenger traffic should be handled by a reduced number of heavy trains travelling at moderate speeds.

The author concludes with chapters on the work of French railwaymen during the war, and their part in helping the Allied Forces after the invasion of Europe. His closing pages review some French railway plans for the future, including the electrification of main lines.

The Scrap Heap

Tyranny

Fortified by a machine majority in the House of Commons, the Chancellor of the Exchequer may do what he likes, for he is the master of the situation. So there is only one thing I can address to the Leader of the House, and that is, while it is excellent to have the strength of a giant, it is tyrannous to use it like a giant.—*Lord Balfour of Burleigh during the recent debate on the Transport Bill in the House of Lords.*

* * *

Vandalism in Victoria

Windows in compartments, window louvres, crossbars in the windows of carriage toilets, and suburban train electric-light lamps are targets for vandals. Most of the damage to louvres occurs when people use them as bottle-openers. They rest the cap of the bottle on the edge of a louvre and then give a vicious and weighty downward smack. Invariably there is a splintering of these frail louvres, leaving forlorn gaps.

It is hard to understand the mentality of people who apparently delight in making huge slashes in the upholstered parts of carriages. And then there are instances of complete seats and cushions being flung recklessly from the train. Even those eye-pleasing scenic pictures in compartments are not immune from attacks. The protecting glass has been broken, the frames ripped off, and the photographs torn beyond all recognition.

Seventy-five per cent. of the railway maps of Australia, Victoria, and the Melbourne suburban area, together with glass and frames, at the ends of corridor carriages, have been maliciously torn from their positions.—*From "The Victorian Railways Newsletter."*

What! No Closed Shop?

Amateur labour, consisting of volunteers from 12 countries, has just completed the driving of a 4,425-ft. tunnel on the new "Youth Railway" in Jugoslavia from Samac to Sarajevo. The volunteers include 200 students from Great Britain (see also "The Scrap Heap" in our June 20 issue).

* * *

100 YEARS AGO

From The Railway Times, *July* 3, 1847

CHEAP EXCURSION on the 26th and 28th JULY.—424 MILES for TWENTY-ONE SHILLINGS. — FROM LONDON to LIVERPOOL, MANCHESTER, CHESTER, and BACK, for Twenty-one Shillings (in covered carriages), allowing a choice of Seven or Fourteen Days, and giving an opportunity (at a small cost) of visiting Glasgow, Edinburgh, and the Highlands; Dublin and the romantic Lakes of Killarney; North Wales and its charming Scenery, the Menai Bridge, &c.; Snowdon, Vale of Llangollen, &c.; the ancient City of Chester; Eaton Hall, the magnificent Residence of the Marquis of Westminster; Manchester and its Manufactories; the Lakes of Cumberland and Westmoreland; the Isle of Man, &c.

Tickets, bills, and every information as to times of starting and the arrangements that have been made with the various Companies for the conveyance of parties for this excursion, may be had only of H. R. Marcus, Conductor, at his office, 22, Crossby-hall Chambers, Bishopsgate-street (opposite the end of Threadneedle-street), London.

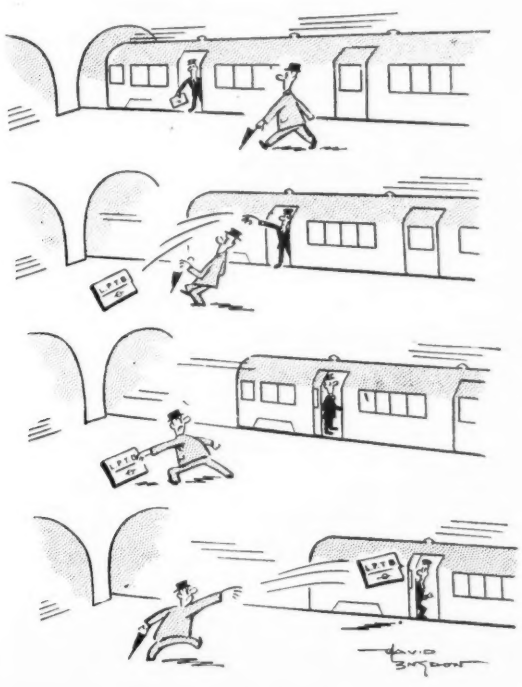
Early application is requested, the number of tickets being limited.

* * *

The Civil Service

Disregarding the Post Office, which is a commercial undertaking, there are now 494,000 non-industrial Civil Servants. This number may even increase, since some 18,000 employees of approved societies and similar agencies and some 10,000 employees of county agricultural committees are shortly to pass into direct State employment. . . . Against these increases must be set the 44,000 Civil Servants who can one day be discharged when food rationing and other temporary controls are no longer needed, and the 60,000 still engaged in "terminal work left over from the war or connected with resettlement" . . .

Mr. Attlee did not explain why the Ministry of Supply still requires an establishment almost as large as that of the War Office or of the Ministry of Food and nearly three times as great as that of the Board of Trade. The Inland Revenue Department, which has doubled its staff since 1939 and has gained 10,000 employees since July, 1945, is now the largest department other than the Post Office. . . . The recent review of departmental staffing was undertaken by the departments themselves under the supervision of a Treasury committee. At no stage apparently were minds from outside the Civil Service brought in for consultation or criticism. Yet it may be doubted whether an appraisal of the efficiency of the various branches of the Civil Service ought to be left solely to the judgment of other Civil Servants.—*From "The Times."*



[*Reproduced by permission of the proprietors of "Punch"*

[*From the "Daily Express"*

* * *

£3,750 a Year

The appointment of public relations officers in Government Departments has always been an extraordinary business. Normally, no one can aspire to the higher posts in the Civil Service without having passed the hardest of examinations. Progress upwards within the service is very slow and the rewards are meagre. The much-respected head of the Civil Service, Sir Edward Bridges, receives a salary of only £3,750, and the salaries of Departmental heads seldom exceed £3,000.

Judge, therefore, of the surprise of the public when they heard that a gentleman, named Mr. S. C. Leslie, who in the past has contributed many choice flowers to Mr. Herbert Morrison's oratory, has recently been elevated to the post of Chief Economic Information Officer at a salary exactly equal to that of the head of the Civil Service. Mr. Leslie is a man of ability. So are hundreds of other Civil Servants who receive a third of his pay after giving the best years of their lives to the service of the State.—"*Observer*," *in "The Financial Times."*

* * *

Tailpiece

(Fewer trains this summer: save coal for the coming winter)

Travel mid-week if you can,
On Summer trains there is a ban;
No week-end travel, if you please,
Stay at home and take your ease.

Mid-week travel is the best,
North to South, or East to West;
You are sure to find a seat,
Without an acrobatic feat.

If you want a "Better 'ole,"
When the nation's short of coal,
Don't go to it Saturday,
Wednesday is a better day.

Travel mid-week if you can,
When there's room for everyman;
Then you'll save the nation coal,
For next winter's "Better 'ole."

W.E.N.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

"Round in Nine" Tours

"Round in Nine" tours, which were so popular for short holidays before the war, were restored in June. Travellers visit Waterval Boven, Nelspruit, Sabie, the Game Reserve, Graskop, Komatipoort, and Lourenço Marques. They leave the train and go by road to the Game Reserve and Magoebaskloof, and a short sea excursion is included in the programme at Lourenço Marques.

Coal Traffic Record

South African Railways earnings from coal traffic reached the highest level since 1920 in the week ended June 7. Revenue from coal traffic in that period amounted to £158,053, as compared with £114,682 in the previous week—an increase of nearly £44,000. Compared with the corresponding week of last year, the increase was £47,000. Demands for coal continue to increase through the expanding demands of householders, industry, and power stations.

Radio Telephony on S.A.R.

Extensive experiments in the use of radio telephony on South African trains have been carried out by the railways for some years. Radio telephones have been placed in service already in the railway headquarters at Johannesburg, Cape Town, Port Elizabeth, East London, and Bloemfontein; and others are being installed at Durban and Kimberley. Should the system come into universal use, it will be possible for business men to keep in touch with their affairs throughout the longest journey.

Radio communication appears destined to play a considerable part, also, in the operation of marshalling yards. In such circumstances the elimination of interference presents the biggest problem, and consideration is being given to the use of very high frequency apparatus for communication between marshalling yard controllers, signal boxes, and shunting engines.

Central Training Institute

A stage has been reached in the building of the "railwaymen's university" at Esselen Park which permits training to be undertaken there in certain categories. Esselen Park is situated on the main line half way between Johannesburg and Pretoria.

The foundation stone of the training institute at Esselen Park was laid by the Minister of Transport on December 10, 1943. When completed, the institute will accommodate 1,200 students, and a staff of Europeans and non-Europeans numbering about 500.

Every branch of railway work will be taught, with the emphasis on the practical side. Staff being trained in operating, for example, will have a continuous section of full-size railway tracks on which all phases of train-working will be taught under normal operating conditions. The line will be equipped with stations and signal boxes and a full-size train will be used.

The institute will be administered by experienced teachers, who will be assisted by a staff of specially selected railway officers. Good progress is being made with the administrative block, which, in addition to offices, will hold 46 classrooms and an assembly hall for 1,500 people. The institute will be self-contained, having its own post office, shops, and canteens. For recreation, a large swimming bath will be provided; also an athletic track, and several football and cricket fields.

CANADA

Objection to Diesel Proposal

A protest against the introduction of diesel power on the Maritime Lines of the Canadian National Railways has been voiced in the Canadian House of Commons. It was claimed that this step was part of a policy that was "destroying the best local market" for Nova Scotia coal. In reply the Minister of Transport said that the change to diesel power proposed for Prince Edward Island (see *The Railway Gazette* of April 25) would have no effect on C.N.R. coal purchases in Nova Scotia. Even if a reduction had to be taken into account later, it would amount only to 1½ per cent. of the railway's coal requirements for the Maritime Lines.

The Minister continued that the conversion to diesel power on the island would not only effect economy, but would relieve the New Brunswick—Prince Edward Island car-ferry of the burden of carrying coal. It would have no effect on the number of C.N.R. employees in Prince Edward Island. On the C.N.R. Toronto—Montreal—Halifax service, a few test runs were to be made with a diesel locomotive loaned by the builder.

UNITED STATES

Express Transport for Livestock

By fitting Timken roller bearings to 300 livestock vans, the Union Pacific has been able to schedule certain diesel-hauled livestock trains to run between Salt Lake City and Los Angeles at speeds practically on a level with those of passenger services. The roller bearings eliminate speed restrictions necessary hitherto as a precaution against hot boxes.

Of the 300 vehicles, 250 are of the double-deck type, with the upper deck 5 ft. 4 in. above the floor. Various structural modifications have been made to the cars to make them suitable for high-speed service, and they have been finished in the company's standard high-speed train livery of yellow with red lettering. The roofs are painted aluminium, partly for the sake of appearance, and partly in order to reflect heat from the sun. As a result of having these new vehicles, the Union Pacific is able to transport livestock non-stop from Salt Lake City to Los Angeles in about 32 hr., as against the usual schedule of 58 to 60 hr. A stop previously necessary at Las Vegas for water and feeding has been abolished.

Eastern Railways Fares Increased

The Interstate Commerce Commission recently authorised the Eastern railways to increase their basic passenger fares by approximately 10 per cent. on 5-day notice to the public. The authorisation was given to sixty systems operating east of the Mississippi and north of the Ohio and Potomac rivers, and was in response to an application made earlier this year (see *The Railway Gazette* of April 25).

The railways concerned may now increase basic one-way passenger fares in coaches from 2·2 to 2·5 cents a mile, and in parlour and sleeping cars from 3·3 to 3·5 cents a mile. Minimum one-way fares may be increased from 10 to 15 cents, but instead of a minimum increase of 5 cents in any fare, it was required that the railways should make the increased fare to the nearest full cent.

A similar increase was granted recently in response to a separate application from the New York, New Haven & Hartford as recorded in *The Railway Gazette* of May 30. The commission pointed out in authorising the latest increases that passenger train operations on the Eastern railways in 1946 incurred a deficit in net railway operating income of $54,000,000, and that "with declining traffic anticipated for 1947, the deficit for that year will be even greater unless fares and other passenger train revenues are increased."

NEW ZEALAND

Calculator for Electrification Problems

An engineering assistant in the Railways Department has devised a calculating instrument which reduces greatly the time required for computing the power requirements of electrified sections. The machine, which cost £600 to build, stands over 6 ft. high, is 7 ft. long, and weighs 7 cwt. It contains 8,000 ft. of electrical wiring, with numerous meters, switches, and controls, enabling the effect of a train passing along an electrified section to be simulated. The power taken by any number of locomotives on a given section of track is measured.

This instrument was designed in the course of preparing estimates for the location and number of substations required in connection with the Hutt Valley electrification. The drawings were prepared in one week, but it took the staff of the General Electrical Engineer's Office five months to build the machine. When completed, and operated by two men, it took 16 hr. to compute estimates, the preparation of which previously had occupied four months.

BRAZIL

Victoria to Minas Modernisation

In 1943 the work of modernising the Victoria to Minas Railway, Brazil, was entrusted to the Cia. Vale do Rio Doce, with a view to improving the transport of manganese from Itabira to the port of Victoria (some 270 miles north of Rio de Janeiro). An article on the work involved appeared in *The Railway Gazette* of June 11, 1943. The President of the company, Sr. D. J. Pimenta, recently gave an interview to the Press on the achievements of the undertaking since its formation in 1942.

Although formed primarily to facilitate the export of manganese from Itabira, the company included in its programme the development of agriculture, commerce, and industry in the whole of the valley of the Rio Doce. This involved extensive re-equipment of the old Victoria to Minas Railway. The most difficult section of this line, from a technical standpoint, was that from Collatina to Victoria, a distance of 150 km. (93¼ miles). This included grades of 1 in 40, and numerous curves with a minimum radius of 5 ch. Rails were of the 22-kg. (48½-lb.) type, laid on earth ballast. The whole of this alignment was abandoned, and a new one made with maximum grades of 1 in 200, and curves of 22 ch. minimum radius. The new line is laid with 77-lb. rails on stone ballast.

Train loads on the old line were limited to 5 wagons with 200 tons, but

loads of 40 wagons or 1,500 tons are now possible. Modifications are in progress also at the mines at Itabira in order to develop the huge reserves of manganese at Cauê and Conceição, which, in due course, will be exported to the U.S.A., Canada, and Great Britain. Some 350 steel wagons and 18 locomotives are at present in traffic exclusively for the transport of manganese. For other merchandise, apart from the rolling stock left by the Victoria to Minas Railway, a further 50 open wagons have been received from the U.S.A., and 4 locomotives have been bought from the Paulista Railway. Two hundred covered wagons and 100 open wagons are being assembled in the Itagiba shops at Victoria. In addition, 9 Mikado engines and 2 diesel-electric engines are due to arrive from the U.S.A.

Passenger Services

Despite the fact that passenger coaching stock is not yet up to modern standards of comfort, movement has increased considerably in recent years, denoting a steady increase in the population of the valley of the Rio Doce. Against a total of 376,975 passengers in 1942, 769,219 were carried in 1945, and more than 800,000 in 1946. A night service has been inaugurated between Bello Horizonte, on the Central Railway, and Governador Valladares; and to improve the comfort of passengers seven new first class coaches have been purchased for service between Victoria and Nova Era.

Proposed New Line

At a future date, when traffic on the Santa Barbara route of the Central Railway from Bello Horizonte to Des. Drummond reaches saturation point, a new line will be built from Itabira to Bello Horizonte. Surveys have been made already, and it is calculated that the new line will be 127 km. (79 miles) long, against the distance of 230 km. (143 miles) by the present route.

INDIA

Direct Bombay—Karachi Link

The survey for the Bombay—Karachi rail link has been completed, and the report is being considered by the Railway Board. It is thought likely that the proposed railway would follow the original route *via* Hyderabad, Badin, and Viramgam, as the alternative route through Cutch State would involve considerably greater capital expenditure. It is understood that the Cutch State authorities are approaching the Jodhpur State Railway administration with a view to the branch line at Mount Abu being extended to Kundla, a Cutch port some 22 miles from the present railhead.

It is interesting to recall that this latest and most complete survey of a railway line connecting Bombay with Sind was carried out under the direction of Mr. W. L. D. Martyn, Engineer-in-Chief, Surveys & Constructions, N.W.R. who, as a junior officer, took part in the fieldwork of the previous survey of this route some 18 years ago.

Future of River Transport

River transport services in North-East India were the subject of a recent conference at Calcutta, under the chairmanship of Dr. John Matthai, Transport Member in the Central Government. The origin of the discussions was a motion in the Central Assembly over two years ago, when it was suggested that steamship companies should be taken over by the State and worked as part of the railway system. When asked their opinion, one of the three provincial governments concerned "provisionally" favoured nationalisation; another was non-committal in the absence of full data; and the third gave no final reply.

Since then the Central Government has rejected nationalisation—wisely, as many think, since it has enough State enterprises on its hands already, and what the future of those will be as a result of the forthcoming constitutional changes is unforeseeable. The Central Government now favours statutory control over expansion by means of licensing through a regional board; if this were agreed to, the Railway Board would negotiate working agreements with the companies. That may eventually be possible, but here again constitutional uncertainties in N.E. India seem to make the present an inauspicious time for changing long-established arrangements.

CEYLON

Housing Scheme for Railway Workers

A housing scheme for employees in the minor grades at the railway workshops at Ratmalana, and the running sheds at Colombo, was inaugurated in March, when the Governor, Sir Henry Monck Mason Moore, accompanied by the Minister for Communications & Works, Colonel J. L. Kotalawala, unveiled commemorative pillars at Maligawatte (Colombo) and Ratmalana, in the presence of a large number of Government officials and workers.

The urgent necessity of providing this category of workers with living quarters close to their place of employment has been felt generally, and an immediate start is to be made by building 176 sets of quarters at Ratmalana and 100 at Colombo on railway property, at a cost of Rs. 2 million. The scheme envisages the provision of 500 semi-detached cottages, with a community centre, dispensary, co-operative store, playing fields, and school. The cottages will be provided with electricity and water service.

The whole undertaking, which is estimated to cost Rs. 4,712,500, has been entrusted to a senior engineer of the Public Works Department, and is now well in hand.

KENYA & UGANDA

Critical Coal Situation

In moving the adoption of the draft estimates of revenue and expenditure of the Kenya & Uganda Railways & Harbours for 1947, the General Manager, Sir Reginald Robbins, reviewed the difficulties with which the railway system has to contend.

Fuel has proved a very serious worry, and on one occasion it was necessary to have a coal shipment diverted by wireless in order to maintain supplies. The shipment arrived on a Sunday evening, at which time the administration had only enough coal left to last until Tuesday morning.

Equipment Shortages

The General Manager said that he had "a very grim and pessimistic story" to tell regarding the rolling stock position. There was reasonable hope that they might get 50 new third class vehicles some time next year, but there was no hope of additional upper class stock or locomotive power. So far as upper class stock was concerned, the earliest they could expect delivery from England was in two years' time, and that was extremely tentative. Efforts also were being made to reclaim material and equipment to renovate existing coaches.

There was a similar stringency in respect of the supply of locomotive boiler tubes, and a long telegram received recently from the Secretary of State was even more pessimistic than what the General Manager himself had said already in regard to the iron and steel position. This shortage of supplies and other factors were driving up costs to an alarming degree.

Housing for Native Staff

The administration was doing its best to provide housing accommodation for the staff, and had been able to buy from the Navy a camp at Mombasa which had been used for housing Europeans. For a very reasonable sum this had been converted for the use of African employees.

TANGANYIKA

Delivery of New Locomotives

The first three locomotives of a batch of six ordered in Great Britain two years ago arrived recently at Dar es Salaam. They are the first new locomotives received by the Tanganyika Railways for 15 years, and are provided with larger tenders than their predecessors. The engines will be used both for passenger and goods traffic, and it is expected that their use will permit an increase of between 100 and 200 tons in the loads handled on certain sections of the line.

FRANCE

Metro Fluorescent Lighting

Fluorescent lighting is now on trial at the Franklin D. Roosevelt and Chaussée-d'Antin Stations on the Metro line (from Pont de Sèvres to Porte de Montreuil). The tubes, each about 3 ft. long, are hung in 17 pairs above the edge of the platform, giving pleasing soft light, free from glare. Supplied with a.c. at 220 volts, each consumes 35 watts and gives illumination equivalent to that of a 60-watt lamp.

SWEDEN

Credit for Bergslagen Purchase

The provisional agreement for the purchase by the Swedish State Railways of the Bergslagen Railways and its associated Gävle-Dala Railway (see *The Railway Gazette* of May 2) was confirmed recently by the Swedish Riksdag. It was consented, after protracted discussions, to grant a credit of Kr. 80,300,000 (approximately £5,537,930) for the purpose.

SWITZERLAND

Through Service by Three Railways

On May 4 a new fast through service was introduced between North-East and Central Switzerland *via* Romanshorn, St. Gall, Rapperswil, Arth-Goldau, and Lucerne. This route is somewhat longer than the connection between Romanshorn and Lucerne *via* Zurich, totalling 100 miles as against 87¼ miles. It may be preferred, however, by passengers, especially between St. Gall and Lucerne, who are desirous of avoiding the necessity of changing at Zurich.

In the composition of the new through route, the Bodensee-Toggenburg Railway accounts for 58·3 miles between Romanshorn, St. Gall, and Rapperswil; the South-Eastern Railway covers the 24·2 miles from Rapperswil to the junction with the Gotthard route at Arth-Goldau; and the remaining 17·4 miles to Lucerne are over the Swiss Federal Railways.

Long Welded Rails in the U.S.A.

Economic results based on 14 years of experience and 8 and 7 years' comparative testing on the Delaware & Hudson Railroad

MUCH has been done during the last fifteen years towards the elimination of rail joints by welding rails into long lengths, and we have made more than one reference to this in our columns. The subject has become of increasing interest and importance in view of the rise in wage costs of track labour, and the scarcity of skilled men. The engineering practicability of long welded lengths in open track has been demonstrated clearly, and experience has shown the nature and extent of the problems involved, so that the extension of the practice is primarily economic. The use of mechanical equipment and tools is conserving many man-hours and will continue to do so, and it is possible that long welded rails will make an important contribution to the desired reduction of maintenance costs.

In two important respects conditions in the U.S.A. are fundamentally different from those obtaining in Great Britain, namely, the fact that in America the flat-bottom rail is universal, and that the standard rail length is but 39 ft., due to difference in rolling-mill practice there, involving no fewer than 270 joints in the two rails of a mile of single line.

At present, some seventeen U.S.A. railways have installed varying amounts of welded track, but, nevertheless, the total of welded rail throughout that country is estimated at about 100 miles, which is a negligible percentage of the track mileage of the country. Moreover, about 33 miles of this is in special installations over bridges and river crossings, through tunnels and stations, and in city streets. The remainder is open track, where it is interesting to learn that weld failures are less than 1 per cent. It is the open-track welding of rail that provides the principal interest for general practice.

Much of this is not long welded rail as the term is understood in Great Britain, for it consists of two standard 39-ft. rails welded to make a 78-ft. rail, which, apart from the fact that it demonstrates the practicability of a sound welded joint, is not greatly different from the 60-ft. rail which is the length into which British rails are rolled normally.

Pioneer Work

The Delaware & Hudson Railroad was the pioneer in installing continuously-welded rail in long lengths in open track as long ago as 1933, and at present that railway has eleven separate installations, totalling approximately 43 track-miles, which is the greatest mileage of continuously-welded rail on any railway in that country. Installations were laid in every year from 1933 to 1937 inclusive, and also in 1939. They involved 3,707 Thermit welds, and 7,277 flash welds. Out of this total of 10,984 welds, there have been only 88 failures, and 7 of these were by reason of a derailed vehicle with a broken wheel. Some of this welded rail has carried more than 200 millions gross (short) tons of traffic at speeds as high as 60 m.p.h.

There is at least one long welded section on every division of the Delaware & Hudson Railroad, and all Divisional Engineers, and most of the Track Supervisors, have had experience with its maintenance. Everyone has been asked by Mr. P. O. Ferris, the Chief Engineer, to report on his views as to the relative merits of welded track as compared to jointed track, and to give their recommendations regarding further installations of continuously-welded rail.

Mr. Ferris has kindly supplied us with a summary of these observations, which generally are favourable to the extension of the practice, but outline detailed maintenance difficulties. It is agreed that maintenance is far less with welded track than with jointed track, and that welded track holds good surface and line when adequately ballasted. The main difficulty has been experienced on cinder-ballasted track and on sharp curves.

Various Divisional Engineers record difficulty in working on welded track during hot weather, and recommend that welded rail should not be lifted when the temperature is above 70°. It is found undesirable to work welded rail when it is in compression. Numerous limitations of length of continuously-welded rail are recommended, from 500 ft. to ¼ mile.

In the light of its lengthy experience, and with the advantage of these practical reports, the Delaware & Hudson management decided to instal two test sections under as nearly identical physical conditions as possible.

One section comprises 11·2 miles of 131-lb. welded construction, and 11·2 miles of jointed construction. The tracks are parallel, ballast is crushed stone, and traffic is directional. Of this section there are 7·19 miles of straight track, and 4·01 miles of curved track. The maximum curvature is 4 deg. and the gradient is 0·88 per cent. This section has now been under test for nine years.

The other section is on single track. The ballast is partly locomotive cinders, and partly ore tailings. On the welded section there are 3·84 miles of straight track, and 4·06 miles of curved track. The maximum curvature is 7 deg. and the maximum gradient is 0·64 per cent. The jointed track is similarly ballasted. There are 6·19 miles of straight track, and 7·64 miles of curved track. The maximum curvature is 7 deg., and the maximum gradient is 0·6 per cent. This section has been under test for eight years.

Careful records have been kept of man-hours for every item of maintenance comparable to both types of construction, and this is summarised in the accompanying table, for which we are indebted to Mr. Ferris. It will be seen that there is a saving with welded track in lining and surfacing ranging from 31 to 46 per cent., and in gauging from 33 to 95 per cent.

Mr. Ferris's analysis of the results so far of these tests, regarding economies, is as follows. Welded track will cost from $1,500 to $2,000 a mile more than jointed track to instal, depending on type of weld, quantity of welds, and type of joint fastening. On the basis of the Port Henry test over a period of seven years, there was an annual labour saving in maintenance per mile of, roughly, 30 per cent. for the particular items mentioned. No material costs are included in the saving. There are prospects of further economies in favour of welded construction in both materials and labour. It may be necessary in the life of the jointed rail to make a renewal of the joints or at least re-form the bars, and a reconditioning of the rail ends may be necessary by welding, at costs amounting

COMPARATIVE MAINTENANCE LABOUR COSTS OF CONTINUOUSLY-WELDED RAIL AND ANGLE-BARRED RAIL

	Schenectady installation	Port Henry installation
Test period	8 years. January 1, 1938—December 31, 1945	7 years. January 1, 1939—December 31, 1945
Test stretch	N.B.M.—11·2 miles angle-barred 130-lb. and 131-lb. R.E.	Single—13·8 miles angle-barred 130-lb. and 131-lb. R.E.
Test stretch	S.B.M.—11·2 miles welded 131 # R.E.	Single—7·9 miles welded 131 # R.E.
Average annual tonnage	Angle-barred rail ... 21 million	Angle-barred rails... 14 million
Average annual tonnage	Welded rail ... 13 million	Welded rail ... 14 million
Tonnage since laid	Angle-barred rail ... 189 million	Angle-barred rail ... 132 million
Tonnage since laid	Welded rail ... 113 million	Welded rail ... 109 million

	Man-hours				Man-hours			
	Per mile per annum		Per million tons per mile per annum		Per mile per annum		Per million tons per mile per annum	
	Angle-barred	Welded	Angle-barred	Welded	Angle-barred	Welded	Angle-barred	Welded
Maintenance items								
Lining and surfacing	442·9	148·4	21·09	11·42	383·3	263·8	27·38	18·84
Tightening track bolts	41·2	3·5	1·96	0·27	27·1	1·0	1·94	0·07
Tightening and renewing screw spikes	4·1	0·3	0·20	0·02	2·8	4·2	0·20	0·30
Tightening and renewing clips	56·5	56·0	2·69	4·31	14·5	22·8	1·04	1·63
Bucking rail	0·2	0·1	0·01	0·01	0·0	1·2	0·00	0·09
Gauging	37·9	1·2	1·81	0·09	59·0	39·4	4·21	2·82
Renewing angle bars	6·1	0·0	0·29	0·00	1·5	0·9	0·11	0·06
Renewing insulated joints	0·0	0·3	0·00	0·02	4·1	5·6	0·29	0·40
Replacing rail and cutting in closures	183·9	73·5	8·76	5·65	5·9	8·0	0·42	0·57
Transposing rail on curves	6·5	7·9	0·31	0·61	0·0	0·0	0·00	0·00
Spacing joint sleepers	0·5	0·0	0·02	0·00	0·0	0·0	0·00	0·00
Grinding rail ends	0·0	0·0	0·00	0·00	0·0	0·4	0·00	0·03
	779·8	291·2	37·14	22·40	498·2	347·3	35·59	24·81
Angle-barred rail								
Welded rail	2·68		1·66		1·43		1·43	
Welded rail								
Angle-barred rail	0·373		0·603		0·698		0·698	

to $9 to $10 per million gross tons per mile. There may be some renewal of joint sleepers by reason of the joint, and the rail itself may need replacement with both the material and labour costs attending such renewals. The tests must be continued to determine what the future may bring forth in this regard, and it is intended to continue such tests.

Results of Experience

Experience to date with continuously-welded rail has revealed the following facts:—

(1) A sound practicable welded joint can be made.

(2) Welded rail in long lengths can be transported and installed readily.

(3) In the climate of that part of the U.S.A., welded rail should not be installed at a temperature under 60°.

(4) Welded track can be surfaced, lined, and otherwise worked without risk when done at a temperature equal to or less than that at which laid.

(5) There are fewer failures in welded rail than in jointed rail. No fissure defect has yet been found in welded rail. Statistics compiled by the Sperry Rail Service show a rather large increase in the number of fissures near the rail ends and a somewhat smaller peak in the centre of rails opposite joints. (In the U.S.A. rail joints are staggered). Welded rail eliminates the effect of joint shocks that apparently have some influence on development of fissures.

(6) Proper superelevation must be maintained on curves for the type of traffic handled to secure the maximum life of rail on curves.

(7) It is practicable to transpose welded rail on curves to increase rail life. The only experience with relaying continuously-welded rail yet had is the transposition of the rail on two curves, moving the high rail to the low side and *vice versa*. This work was carried out without difficulty and involved no greater expense than if the rail had been of jointed construction.

(8) It appears that a less expensive fastening for welded rail is possible.

(9) Difficulties experienced with continuously-welded rail can be eliminated by proper construction and maintenance.

Many engineers have questioned the practicability of continuously-welded rail primarily because of the possibility of rail defects. With controlled cooling of rail and with joints eliminated, the possibility of rail defects is materially lessened. Present rail steel, without joints, will last indefinitely on straight sections. Greater hardness and toughness in rail steel through metallurgical research is attainable, in Mr. Ferris's view. This, together with the use of rail lubricators, will increase considerably the life of rail on curves. If such savings as now seem apparent can be realised by installations of continuously-welded rail, the Delaware & Hudson Railroad feels it cannot afford to continue the present jointed construction.

Throughout the U.S.A. there are at least ten stretches of continuous welded rail each more than a mile in length. The longest are 12,782 ft. and 11,440 ft., both on the Elgin, Joliet & Eastern Railway.

The Chicago & North Western Railway began using welded rail in 1941, and has gained experience in both of the ways mentioned earlier, namely, with 78-ft. sections, and with long continuous sections. The former has the attraction in U.S.A. practice of easy elimination of one half of the joints of normal 39-ft. rail track, and provides a substantial economy in maintenance, with improved riding quality, without introducing the problems of longer sections. The C. & N.W. laid 1½ miles near Marshalltown, Iowa, in 1946, and has 14·1 miles in a 22½-mile distance between Modale and Onawa, Iowa. The longest single stretch is 5·1 miles. In all, the railway has 32·43 miles laid with 78-ft. or 117-ft. welded rail.

In addition, it has 8·57 miles of continuous welded rail, in various lengths ranging from 234 ft. to 2,652 ft. The last-named is near Council Bluffs, between Crescent and Honey Creek, where the roadbed was laid on an old Missouri River bottom and is swampy. The 2,652-ft. section was laid on fresh ballast and new sleepers. The eight rails used were welded at the depot into 663-ft. sections, and four of them site-welded to 2,652-ft. for each rail. There are four anchorage points. These consist of 300-ft. sections with rail anchors to hold the rail securely and prevent longitudinal expansion or contraction of the rail, the tendency towards which (due to temperature changes) is thus confined to compressive or tensile stresses within the rail. At these anchorage points, 9-ft. sleepers are used, but the remainder is laid with standard 8-ft. sleepers.

Special L.M.S.R. Vans for Fruit Traffic

Improved ventilation and loading arrangements in new design with hinged shelves

THE L.M.S.R. is to undertake the construction, as soon as conditions permit, of 200 new ventilated vans for the transport of fruit and vegetables from the Worcestershire fruit and vegetable district centred on Evesham, to Midland and Northern markets. This decision is the result of experience gained from the use of six experimental vehicles which have been in service since April, 1946. These experimental vans were constructed after research by the L.M.S.R. into the transport requirements of agriculture, in the course of which helpful suggestions were received from representatives of the Worcestershire fruit-growing industry.

The analysis of evidence collated during this investigation led to the conclusion that improved conditions of transport for fruit and vegetables would be afforded if certain important modifications were made in the design of the vans allotted to the traffic; these included provision of:—

(1) Improved ventilation by forced draught;

(2) A double roof for insulation;

(3) Four permanently-attached wire-mesh shelves.

To enable practical tests to be made, six L.M.S.R. standard goods vans were converted and equipped on the lines suggested. Eight torpedo-type ventilators are fitted to the double roof of these vehicles. In the sides and ends of the vans there are six ventilating grilles, arranged one at each end and two along each side. The four side grilles are fed by eight air scoops.

The four shelves, each measuring 6 ft. by 3 ft., are constructed of 2-in. angle-iron frames with wire-mesh bases. They are hinged to the van sides, 3 ft. 9 in. from the floor, and supported by chains. Two shelves are fitted on each side of the vans, clear of the doors, and at the door ends two retaining chains are fitted between the van sides and the suspension chains to prevent packages of fruit falling off during transit.

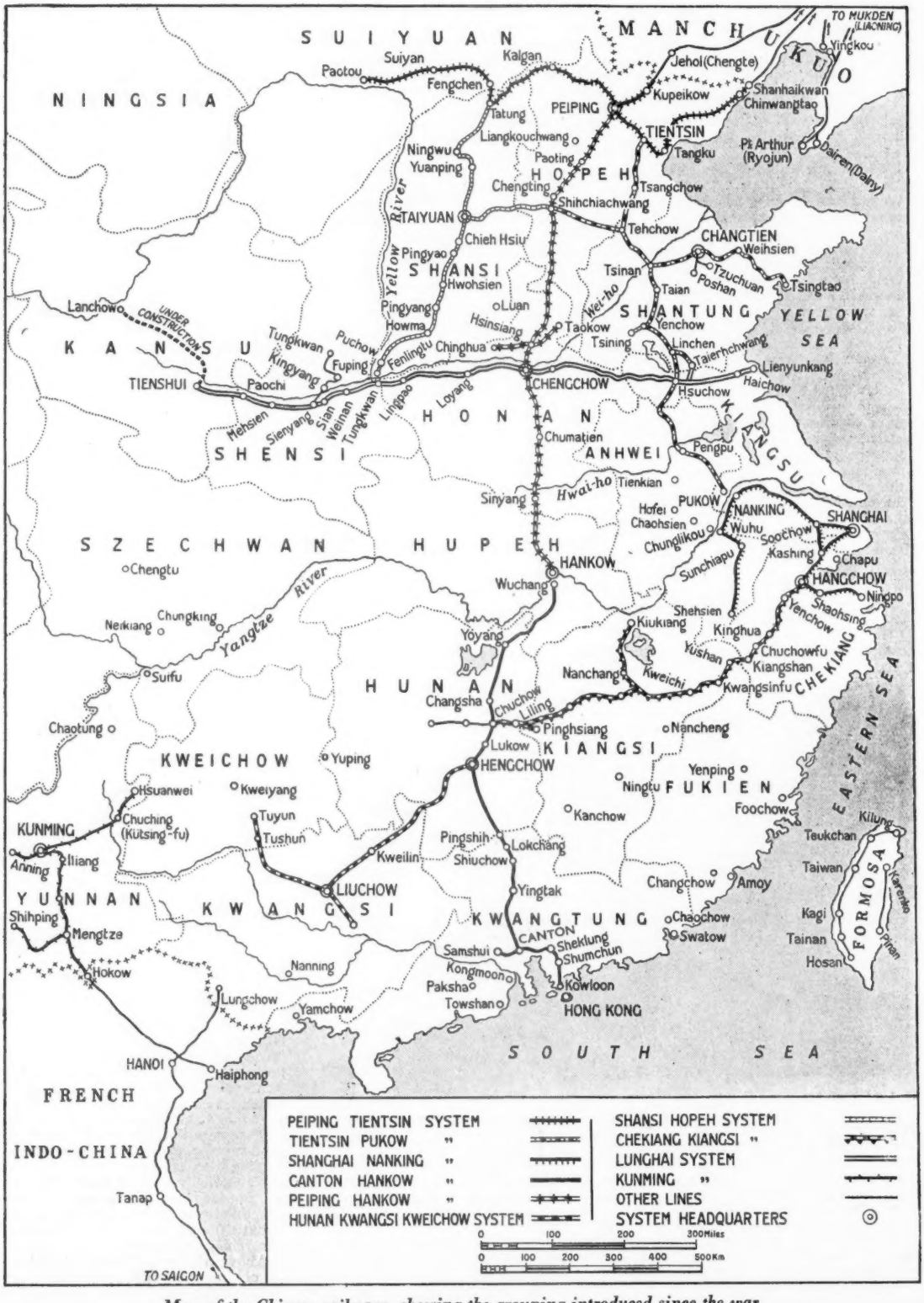
When not in use, the shelves fold upwards against the sides of the vans, and are secured by gravity catches. The approximate loading capacity of each shelf is 7½ cwts.; each will accommodate 40 12-lb. chips of fruit.

Discharge and Sorting Simplified

The summer of 1946 did not produce periods of prolonged hot weather, and in consequence the new ventilation and insulation system could not be tested fully; but sufficient evidence was forthcoming to prove its value, particularly in the prevention of "sweating" in bagged and crated vegetables. The shelving was found to help considerably in the loading and segregation of small quantities of produce for different consignees, and in loading separately different varieties of fruit and vegetables. Discharge and sorting at the destination station were simplified greatly. An average increase of about 10 cwt. was achieved in the load per vehicle by the use of the shelves.

Above all, the primary objective—that of obviating damage to very susceptible commodities—has been achieved, and reports from various sources indicate that fruit and vegetables conveyed have been delivered in prime condition.

Railways in China



Map of the Chinese railways, showing the grouping introduced since the war

Railways in China

Capital requirements of extensive reconstruction plans

By H. H. Ling, M.A.S.C.E.

Former President of the Chiaotung University, Director-General & Chief Engineer, Canton-Hankow Railway, etc.

Hangchow Station, Shanghai-Hangchow Railway

RAILWAY history in China began in 1876 with the opening of the 2 ft. 6 in. gauge Woosung line, which was built by foreign enterprise. Four years later the Tongshan-Hsukuchuang line was opened, and in 1886 was extended to Lutai, and then in 1888 to Tientsin. This line now forms part of the Peiping-Liaoning (Peiping-Mukden) section of the National Railways.

After the Japanese war of 1894, concessions were given to companies of various nationalities for the construction of a number of railways, including a concession for the Chinese Eastern Railway, but from 1908 onwards all contracts yielded complete administrative control to the Chinese Government, while a number of the older lines were nationalised later by mutual agreement. The first railway financed, constructed, and operated by the Chinese Government ran from Peiping to Kalgan. It was extended subsequently to Suiyuan. The other early main lines were built mostly with foreign loans and operated on a commercial basis.

When the announcement was made in 1909 that all railways in China were to be handed over to the State, there was a total of 9,600 km. of State-owned and privately-owned railways in the country, including the Chinese Eastern and South Manchurian Railways. The policy of State ownership was reaffirmed in 1912, the first year of the Chinese Republic, and privately-owned railways were bought by the Government.

Since most of the early railways were built with foreign capital, there was little uniformity of practice or policy. To offset this shortcoming, a uniform system of railway accounts and statistics was adopted in 1914, and uniform standards for technical requirements were introduced a few years later. Meanwhile, provisions governing railway staff were adopted, and a forward step was taken thus towards a sounder foundation for railway administration.

On the establishment of the Republic in 1912, the welding of the existing lines into a national unit was pushed forward, and the first annual report covering all the railways was issued in 1915. Interchange of rolling stock followed in 1920, while a careful study of standardisation from 1917 to 1922 resulted in the production of "go anywhere" 40-ton open and covered wagons. After the first world war many lines were reconstructed with Chinese funds and by Chinese engineers.

Development Between the Wars

Since 1927, an intensive effort had been made to construct a network of railways in conformity with Dr. Sun Yat-sen's programme of national reconstruction. Meanwhile, the mounting tension of Sino-Japanese relations added further emphasis to the urgent need of railway communication. Consequently, the Ministry of Railways was set up to extend the Canton-Hankow, Lunghai, and Chekiang-Kiangsi Railways, and to repair the Soochow-Kashing, Nanking-Kiangsi, and Hunan-Kwangsi Railways. At the same time, plans were made for the construction of the Hunan-Kwangsi, Kweichow-Kwangsi, Chengtu-Chungking, Suifu-Kunming, and Yunnan-Burma Railways.

In 1937, at the outbreak of the Sino-Japanese War, the Canton-Hankow, Chekiang-Kiangsi, and the Soochow-Kashing Railways had been completed and were already in operation. The Lunghai Railway had been extended to Paoki, and the Shanghai-Hangchow Railway had been extended to Chao-er-kiang. The Nanking-Kiangsi and Hunan-Kweichow Railways were in process of repair at the outbreak of the war, but had to be destroyed to prevent them from being utilised by the enemy.

With the total absence of railway supplies from abroad, work on the Chengtu-Chungking, Suifu-Kunming, and Yunnan-Burma Railways had to be suspended. However, work on the Hunan-Kwangsi, Kweichow-Kwangsi, and Paoki-Tienshui Railways went on apace and was completed while the war was still in progress.

Of the privately-owned and operated railways, the Tatung-Puchow, Nanking-Wuhu, and Pengpu-Suichiahu systems were completed, with an aggregate length of 1,102 km. The total length of new railways added up to over 5,200 km. With those already in operation, there was a total of over 19,000 km.

Post-War Situation

At the time of the Japanese surrender in August, 1945, there were 11,330 km. of railways in Manchuria, 5,142 km. of which were newly constructed. There were 12,979 km. of line south of Shanhaikwan, 3,926 km. in Formosa, and 289 km. in Hainan Island, making a total of 28,524 km.

Extensive damage on railways had been caused by military action, both during and after the 8-year war. When the Soviet Army was withdrawn from Manchuria, practically all of the 13,000 km. of railways were found to be in the hands of Chinese Communists. Since then, over 5,600 km., or roughly 50 per cent. of the railways, has been brought under Government control again. The railways in Formosa and Hainan Island, totalling 4,215 km., are still in good shape. Of the total of 12,979 km. of main and secondary railways in China proper, 3,000 km., or roughly 25 per cent., was in usable condition. After 1½ years of intensive repair,

Exterior of Hangchow Station

Shanghai North Station, Shanghai-Nanking Railway

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over 8,200 km., or roughly 68 per cent. of the total, is now operating.

Although improvements are being introduced constantly on the Nanking-Shanghai and Shanghai-Hangchow Railways, the other lines are only barely serviceable, and will require extensive repairs and improvements. However, due to the lack of funds as well as necessary materials, the realisation of large-scale projects is being held up.

Railway Construction Projects

In spite of all difficulties, the Ministry of Communications has decided on the following:—

1.—Repair and modernisation of railways already in operation.

2.—Construction of 14,000 km. of railways within the next five years. A beginning has been made already on railways in the north west and south west. Survey work on the 1,636 km. line from Urumchi to Lanchow has been completed. The Lunghai Railway will be extended from Tienshui to Lanchow, a distance of 417 km. Work on the Tienshui-Chengtu line (755 km.) is scheduled to begin shortly. Half the Chengtu-Chungking Railway (530 km.) has been completed and lines are ready to be laid. The Lungchang (midway between Chengtu and Chungking)-Luhsien-Kweiyang line (455 km.) has been surveyed already, but work has not yet begun. The Kweiyang-Liuchow-Leipin line (692 km.) is under construction. The aggregate mileage of the railways mentioned totals over 4,900 km.

The next step will be to connect the main lines in the north west and north China. Seventy km. of the 1,000 km. line from Lanchow, *via* Ninghsia, to Poutou (terminus of the Peiping-Kweisui Railway) has yet to be surveyed.

The lines mentioned in (2) run through industrial areas rich in resources. Outstanding products are furs in Kansu and Sinkiang; oil in Urumchi and Yumen; foodstuffs in Kansu, Szechwan, and areas west of the Yellow River; coal and iron in the vicinity of Kweiyang; and timber in Szechwan and the Chin Mountains, not to mention other mineral resources. Once the network of railways is completed, it is reasonable to assume that the volume of traffic will be heavy and profits great.

The secondary lines connecting the main lines in the north west and north China also run through areas rich in salt, coal, furs, and foodstuffs, and are, therefore, important from the economic viewpoint.

Since the end of the war, great improvements have been effected in the face of extreme shortages of supplies, locomotives, and rolling stock on the Nanking-Shanghai and Shanghai-Hangchow Railways. Traffic on the Canton-Hankow, Peiping-Kweisui, Lunghai, Tsingtao-Tsinan, Chingtin-Taiyuan, and Peiping-Kupeikou Railways has been resumed. Repair work is under way along the Peiping-Hankow and Tientsin-Pukow Railways, as well as those in Manchuria. A deadline has been set for the completion of the Chekiang-Kiangsi, Hunan-Kwangsi, and Kweichow-Kwangsi Railways. The total mileage of the above is around 13,800 km. (Formosa and Hainan Island excluded).

Before the war, most of the railways were profit-making. After complete repair has been made, and improvements introduced, the future of the Chinese railways will be very bright. Although further improvements will have to be made on the Nanking-Shanghai and Shanghai-Hangchow Railways, the total mileage of which is only 500 km., the present volume of passenger and freight traffic is already heavier than that before the war. Profits realised will be used for further improvement and modernisation.

Before the war, traffic on the Peiping-Hankow, Canton-Hankow, Tientsin-Mukden, Tientsin-Pukow, Tsingtao-Tsinan, and Chingting-Taiyuan Railways was heavier than that along the Nanking-Shanghai and Shanghai-Hangchow Railways. Once necessary repairs and improvements have been made, there is no doubt that they will revert to their former prosperity.

However, equipment and installations along these railways are in poor condition, and the shortage of locomotives and rolling stock is extremely acute. No large-scale rehabilitation project can be put into practice unless large amounts of funds and supplies are brought in from abroad.

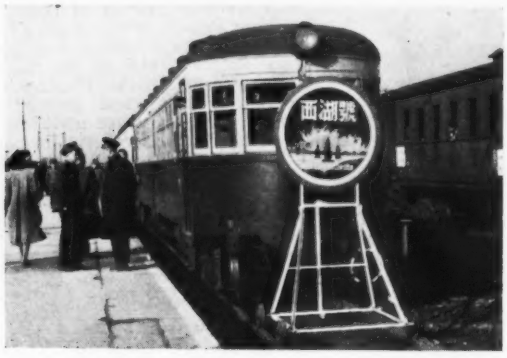
As a result of the war, not only is there a shortage of supplies and materials for the repair of locomotives and rolling stock, but the number of damaged locomotives and rolling stock is steadily increasing. There is no alternative but to remove usable spare parts from the more seriously damaged locomotives and rolling stock for repairing less seriously damaged engines and coaches. The result is that spare parts are being depleted rapidly, while the number of locomotives and rolling stock needing repair is on the upward trend.

Towards the end of the war, the condition of railways in occupied territory was only slightly better than that in free China. Not counting Manchuria, over half the 2,000 locomotives had been damaged, while the condition of usable locomotives and rolling stock was far from satisfactory.

The heavy damage and resultant shortage of locomotives and rolling stock throughout China was foreseen clearly by the Ministry of Communications before the conclusion of the war. Plans were made to establish a central workshop to meet repair needs. Since the war, a central workshop has been set up at Chuchow for repair purposes and for strengthening the repair capacity of the different workshops serving the various railways. Plans have been made for converting this central workshop into a factory for manufacturing locomotives. It is also planned to set up factories in Sian and Wuchang for repairing and manufacturing passenger and freight vehicles.

During the war, great damage had been done to bridges in occupied and free China by enemy and allied bombing. Along the Canton-Hankow Railway alone, 99 of the 122 large bridges, and 163 of the 627 smaller bridges had been destroyed, while 576 steel spans, large and small, had been damaged. It is easy to imagine the heavy damage wrought to other similar installations along the other railways.

After V-J Day, orders were placed for bridge construction materials, but the amount received falls far short of total needs, and improvised wooden bridges are being substituted for the time being.



Petrol railcar excursion train to West Lake, Shanghai-Nanking Railway

Interior of first class sleeping berth on the Shanghai-Nanking Railway

Foreign Investment

Since the war, the Chinese Government still adheres to the policy of developing communications as a fundamental step towards rehabilitation. As the need for the construction of new railways, as well the renovation of existing ones, is urgent in China, the Chinese Government, not having adequate funds to carry out its reconstruction programme, welcomes foreign investment. This will be used to construct new railways; to renovate existing lines; to repair and strengthen bridges; to replenish supplies of locomotives and rolling stock; and to establish factories, workshops, and other plant for manufacturing locomotives, rolling stock, and bridges. Foreign investment in the form of railway materials is equally welcome.

In view of the large population, as well as the rich resources in China, there is no doubt that, as soon as the new railways are constructed and the old ones renovated, the railway industry will be highly profitable. The market for locomotives, passenger and freight vehicles, and bridges turned out by the factories is also great. Under such favourable conditions, railway loans can be repaid readily. It is evident that the Chinese Government is anxious to have the foregoing plans realised with the least possible delay, and for this reason foreign investment is most welcome.

Railways in China

Dining car of special express train on the Peiping-Tientsin Railway

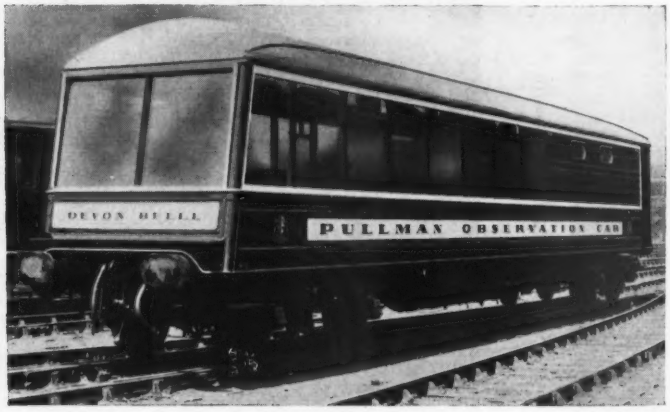
Interior of saloon carriage, Shanghai-Nanking Railway

Centre-corridor first class coach, Shanghai-Nanking Railway

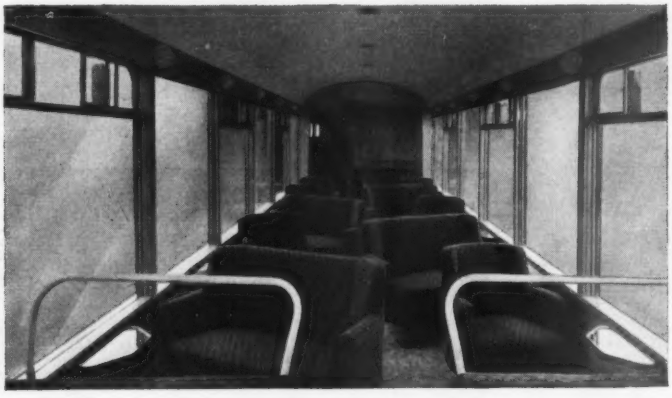
Shanghai-Nanking Railway third class carriage

Reconstructed Pullman Cars for the "Devon Belle"

Two observation cars rebuilt from existing Pullman stock are the first of their type to run on the Southern Railway



THE "Devon Belle" train, which recently began running on the Southern Railway West of England route, is made up of Pullman cars which have been reconditioned for the service. Between Waterloo, Exeter, and Ilfracombe, a Pullman observation-car is provided at the rear of each train, and the car is available to both first and third class passengers.



Interior of the observation car, showing mural route map

The observation cars were converted from two existing Pullman cars, numbers 13 and 14, by the Pullman Car Company at its Preston Park Works; they have steel underframes and wooden bodies, length of the bodies is 59 ft. and the centres of bogies 41 ft. The weight of the car is 33 tons.

There has been no special attempt to streamline the cars in the accepted sense, as the main consideration was to give passengers the greatest possible unobstructed view. The observation end of the car is sloped back at ten deg., and is divided into two large windows which extend the full width of the coach. The windows along the sides cover half the length of the coach, and are especially deep; they extend from the waist rail to the cant rail, and from a safety point of view are glazed throughout in $\frac{5}{16}$ in. armour-plate glass. Double glazing is used to avoid condensation and to assist in sound-proofing the cars. To insulate the remainder of the car Vermiculite is used.

As there are no quarters or cross-partitions in the 33 ft.-long observation saloon, it has been necessary to stiffen up the $2\frac{1}{2}$ in. square wood pillars and metal carline attachments. This has been done by using $\frac{1}{4}$ in. thickness plate tee-shaped gussets at the pillar and cant rail attachments, and a fabricated bracket attachment securing the pillar to the floor with $1\frac{1}{2}$ in. $\times \frac{1}{4}$ in. steel web jointing the two together. The steel carline attachments at the cant rail have been stiffened by special fabricated brackets.

The car comprises a bar, pantry, and lavatory, and an observation saloon which has seating for 27 in single and double tub seats; the seats at the observation end of the car are fitted with shaped rails behind them, for standing passengers. A hand-brake guard's release valve and switch cupboard is incorporated in the corner cupboard. The hand-brake gear is a new design, and operates in the vestibule.

The interior is finished throughout with Warerite plastics, and cellulose sprayed wood and metal mouldings. The saloon ceiling is sprayed broken white colour; walls, skirtings, and mouldings are in tones of dove grey; steam pipe covers are finished in copper bronze. The seating upholstery is in blue white-flecked and red white-flecked material; the carpet is grey brown and white streaked. At the closed end of the car is a curved recess fitted with wall seats, which are surmounted with a mural map of the route to Devon. This map is a design by Miss Eleanor Esmonde-White, and the drawing has been moulded into Warerite plastic sheet. Plastic-topped tables are fitted throughout the car.

A service bar opens into the corridor, and is of curved shape; it is fitted with closing doors, which form wall partitions when the doors are opened. A lighting trough is concealed behind a louvred metal fitting in the soffit over the bar. All bottle and crockery retaining rods are sleeved with P.V.C. plastic tube to minimise breakage and rattle.

The pantry is provided with washing-up facilities, cold-store, cooker, and wine and cigar store cupboards. The lavatory is finished in cellulose sprayed light grey; it has Terrazo granite chipping cement flooring and chromium-plated fittings. Perspex light fittings are set into the cant rail, and laylights are fitted into the ceiling over the closed end of the car.

As part of the public address equipment fitted throughout the train, there are hidden loud-speakers in the saloon ceiling. The exterior of the car is painted in the standard Pullman umber and cream colours in new design and gold lining. The designs and lettering are by Mr. R. Levin, who also designed the Trianon Bar on the "Golden Arrow" train; all designs and work in connection with the construction of the body and the supply of material, were under the guidance of Mr.

(*Continued on page* 17)

View towards the observation end of the car

G.W.R. Developments in Maintenance Equipment—10*

Drain-cleaning apparatus

THE apparatus shown in the left-hand illustration was evolved by Mr. E. J. Pannell and Inspector Bryant, on the staff of the Divisional Engineer, G.W.R., at Paddington, and is used successfully for cleaning drains which have become blocked by clay or some other solid obstruction to such an extent that the use of drain rods in the ordinary way would be ineffective.

The machine consists of a frame of suitable size to enter a normal manhole, and carrying a spindle on which a lever is welded. The lever extends in the form of a fork below the fulcrum, where it is attached by means of links to a pair of jaws. When the lever is moved in one direction, the jaws close and grip a length of steam piping, forcing it forward; when the lever is reversed, the jaws tend to open and slide back along the piping until they are once more in a position to force it forward. An improved type has been devised in which the jaws are located above the fulcrum, and the steel channels form the base, there being no uprights; this arrangement gives more room for men to work, and can be used in a slightly smaller manhole.

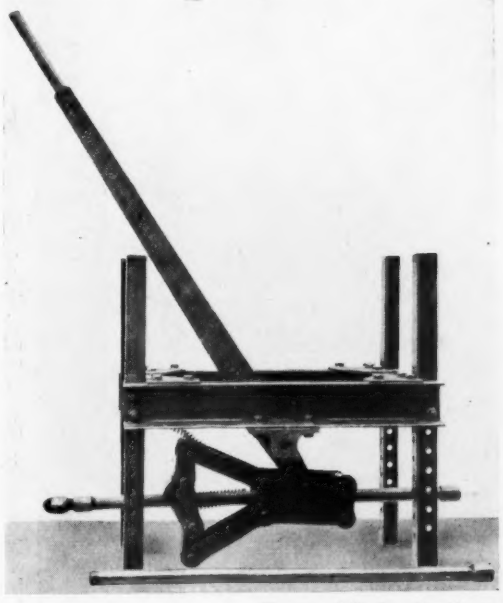
The steam piping is supplied in 4-ft. lengths, which are inserted in the apparatus and screw-coupled as required; a pointed nose can be fitted to the end of the first length to assist in the penetration of clay. When one section of a drain has been rodded, the machine is moved to the next manhole and draws the piping forward, thrusting it into the next section; a wire which has been attached previously at the first manhole is thus pulled through and enables the drain to be cleared in the usual way.

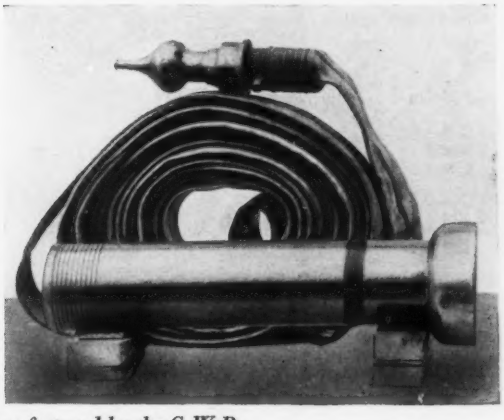
The steel piping is too rigid to traverse sharp bends or depressions caused by settlement of the drain. Should an impenetrable blockage be encountered, it is a simple matter to locate it by the man in charge keeping a record of the number of 4-ft. lengths of piping used, so that the drain can be opened up at the point affected.

Clearing by Spray

Where the obstruction is due to sand or ashes, it probably can be cleared easily by means of the nozzle shown in the second illustration, which is used frequently in locomotive pit drains. This device is screwed to a hose, the other end of which is connected to a hydrant; it is inserted against the fall about a yard up the drain which it is intended to clear. The head of the nozzle contains vanes which cause it to rotate and produce swirling jets in a backward direction when the water is turned on. Little or no effort is required by the operator to push the nozzle further up the drain. The backwash floods the pit in which the operator stands, solid matter being thereupon cleaned out, while the liquid matter flows down the opposite drain falling away from the pit.

* Previous articles in this series appeared in our issues of April 4 and 25, May 2, 9, 16, and 23, and June 6, 13, and 20





Types of drain-cleaning apparatus manufactured by the G.W.R.

Reconstructed Pullman Cars for the "Devon Belle"

(*Concluded from page* 16)

J. L. Gilbert, Engineer, Pullman Car Company.

Principal sub-contractors concerned with work in the reconstruction of the car are shown in the list below:—Warerite Limited: Plastic materials; Pilkington Bros. Ltd.: Manufacture of armour-plate glass; Beckett, Laycock & Watkinson Limited: Fitting armour-plate glass; Dohm Limited: Supplying Vermiculite; Alan Best (Engineering) Limited: Supplying cellulose finishes; James Templeton & Company: Carpets; John Holdsworth & Co. Ltd.: Moquette for upholstery; Imperial Chemical Industries Limited: Perspex light fittings; Broadcast Relay Service Limited: Public address equipment.

The table tops in Pullman car No. 249, *Pearl*, have been covered with Formica in realwood "Avodire" cigarette-proof grade; the grain of this wood was chosen to blend with the existing decoration of the coach. Formica is a product of De La Rue Insulation Limited, and is a decorative laminated plastic material; Hampton & Sons Limited veneered the Formica sheets, which are $\frac{1}{16}$ in. thick, to the existing wooden table-tops; the edges are finished off with standard brass trim.

APPLICATIONS FOR MOND NICKEL FELLOWSHIPS.—Early last year, Sir William Griffiths, Chairman & Managing Director of the Mond Nickel Co. Ltd., addressed a letter to the Institute of Metals, and to the Presidents of the Iron & Steel Institute, Institution of Mining & Metallurgy, Institute of British Foundrymen, and Institute of Metallurgists, inviting them to co-operate with his firm in awarding annually for the next 15 years a number of fellowships, for which purpose the Mond Nickel Company would make available £50,000. Further details of the scheme, which was well received, are now available. The main object of the fellowships is to assist persons capable of appreciating and applying the results of research, rather than to encourage research in industry itself, for which it is considered ample facilities already exist. There is no age limit, although awards seldom will be made to persons over 35 years of age, and each fellowship will occupy one full working year. It is proposed to award up to five fellowships each year, having an average value of £750 each, and normally they will take the form of travelling fellowships. Full particulars, with the necessary application forms, may be obtained from the Secretary, Mond Nickel Fellowships Committee, 4, Grosvenor Gardens, London, S.W.1, and completed application forms must be returned to the Secretary not later than September 1 next.

SUCCESS OF ROAD HAULAGE FILM.—Reports from the 16 units now touring the country with the film "When the Wheels Slow Down" indicate that already it has reached a large and appreciative audience even in districts which returned Labour with a large majority at the General Election. In many areas, including London districts, the film unit has been fitted up in a van and the shows given in the open air, and in other places the unit has been static. Details of this campaign organised by the Road Haulage Association to show the country what might happen if the Transport Bill comes into force were given in our May 23 issue.

The final poster in the series of five issued by the L.M.S.R. illustrating familiar items of railway equipment

RAILWAY NEWS SECTION

PERSONAL

Mr. H. A. Short, Deputy Traffic Manager, Southern Railway, and Mr. H. G. N. Read, Assistant Chief Commercial Manager (General), L.M.S.R., are to visit Argentina at the invitation of the Argentine Government to advise on rail, road and water transport co-ordination. They expect to leave about the middle of this month.

Mr. H. G. N. Read, M.Inst.T., General Assistant to Chief Commercial Manager, Watford H.Q., L.M.S.R., who, as recorded in our June 27 issue, has been appointed Assistant Chief Commercial Manager (General), Watford H.Q., joined the L.N.W.R. in 1907. He joined H.M. Forces in August, 1914, and served successively with the R.N.V.R., the R.N.A.S., and the Army, and was mentioned in despatches. On his retirement from the Army in 1919 with the rank of Major he held the appointment of Deputy Assistant Director of Inland Water Transport in France. He returned to the Department of the General Superintendent (Passenger Commercial), L.N.W.R., and was later concerned with the rates and charges proceedings before the Railway Rates Tribunal in 1927 and the application to Parliament by the railways for road transport powers in 1928. In 1931 Mr. Read was appointed Assistant District Passenger Manager, London. In 1932 he became Road Transport Assistant to Chief Commercial Manager, and he was made Road & Air Transport Assistant in 1936, and Assistant (Road & Air Transport & General) in 1938. He was appointed Passenger Assistant in 1942, and General Assistant in 1946. Mr. Read was concerned in the entry of the railway companies into air transport, and subsequently became responsible for development work so far as the L.M.S.R. was concerned. He has been largely concerned with the co-ordination of railway transport and road and air transport. He is a Director of several railway-associated bus companies, and is Chairman of the Road & Railway Joint Traffic Committee of the Railway Companies' Association. As recorded above, Mr. Read is shortly to visit Argentina, with Mr. H. A. Short of the Southern Railway, to advise on transport co-ordination.

Mr. H. G. N. Read

Appointed Assistant Chief Commercial Manager (General), L.M.S.R.

Sir Robert Burrows (Chairman of the London Midland & Scottish Railway Company) and Sir Nigel Campbell (Deputy-Chairman of Stewarts and Lloyds Limited), who are Directors of the District Bank Limited, are members of the newly-established London committee of that bank.

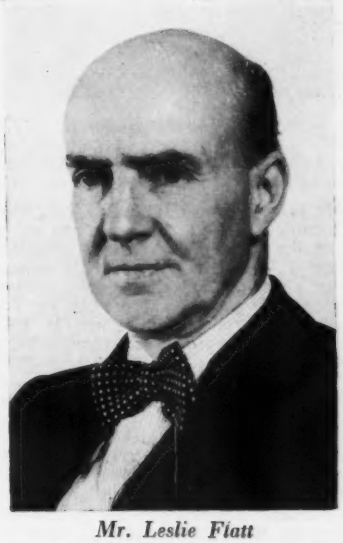
Mr. W. N. Roberts, Assistant to Chief Commercial Manager (Trade Advertising), Watford H.Q., L.M.S.R., who, as recorded in our June 27 issue, has been appointed District Passenger Manager, London, joined the Midland Railway in 1916, and later served with the Royal Field Artillery. On demobilisation, he returned to railway service, and became a relief clerk. After the amalgamation in 1923 he was transferred to the staff of the General Superintendent (Passenger Commercial) at Derby. In 1929 he was transferred to London in connection with the then newly constituted Road Transport Section, which was concerned primarily with matters arising out of the railway road-transport powers and the Road Traffic Act; the section formed part of what was at that time the Passenger Manager's organisation. From March to September, 1936, he was Acting Assistant (Passenger) to District Goods & Passenger Manager, Derby; and then until December, 1937, he was Acting Assistant District Passenger Manager, Birmingham. Mr. Roberts thereafter was appointed Assistant (Passenger) to District Goods & Passenger Manager, Derby; he acted in addition during 1944-45 as Passenger Assistant to District Goods & Passenger Manager, Leicester. In June, 1945, he was appointed Assistant (Trade Advertising) to Chief Commercial Manager.

Mr. W. N. Roberts

Appointed District Passenger Manager, London, L.M.S.R.

Before he left the Royal Train at Norwich on June 26 the King invested Mr. W. P. Keith, who recently was appointed Assistant to Hotels & Catering Manager, Great Western Railway, and was formerly Assistant to Chief Hotels Superintendent (Restaurant Car & Refreshment Room Services), L.M.S.R., with the insignia of an M.V.O. (Fifth Class).

Mr. Leslie Flatt, C.I.E., V.D., B.Sc. (Eng.) (London), M.I.C.E., M.I.Mech.E., M.I.Loco.E., lately Chief Controller of Standardisation, Railway Board, Government of India, who has now retired from Indian Government Railways service, commenced his engineering training in 1906 in the G.E.R. workshops at Stratford. He resigned from the G.E.R., and in 1913 joined the East Indian Railway. He was released for military duty in 1916 and served with the R.E. as Captain until October, 1918, and was mentioned in despatches twice. On returning to railway duty he was posted as Works Manager, E.I.R., Jamalpur. In 1920 he transferred to the Great Indian Peninsula Railway to reorganise its locomotive workshops at Parel, Bombay, and from 1923 carried out a reorganisation of the carriage and wagon workshops, later becoming Carriage & Wagon Superintendent, and then Deputy Chief Mechanical Engineer, until his transfer in 1927 to the Eastern Bengal Railway as Deputy Chief Mechanical Engineer (Running), on which railway he subsequently became Chief Mechanical Engineer. In 1936 Mr. Flatt went to the North Western Railway as Chief Mechanical Engineer, but in 1939 was seconded to the Indian Stores Department as Deputy Chief Controller (Engineering). With the creation, later, of a Supply Department, he became Director of Engineering. In June, 1940, he was recalled to the Railway Department, to become Director, Mechanical Engineering, Railway Board, and in 1944 took over as Chief Controller of Standardisation, from which post he proceeded on two years' leave, preparatory to retirement, in April, 1945. On his return to England he was permitted by the Government of India to become Technical Adviser in London to the Tata Locomotive Engineering Co. Ltd. for the development of locomotive manufacture in the workshops at Tatanagar recently acquired from the East Indian Railway.



Mr. Leslie Flatt

Lately Chief Controller of Standardisation, Indian Railway Board

Mr. Harold Brown

District Engineer, Leeds, L.M.S.R., 1928-47

Mr. W. J. Plogsted

Appointed Vice-President in charge of Export, General Railway Signal Company, U.S.A.

Mr. J. R. Sainsbury

Appointed Resident Engineer, North & South Shields Docks, Tyne Improvement Commission

Mr. Harold Brown, B.Sc., M.I.C.E., who, as recorded in our May 2 issue, has retired from the position of District Engineer, Leeds, L.M.S.R., commenced his railway career under the late Mr. Joseph Cartmell, Engineer of the Maryport & Carlisle Railway, and on his retirement in 1915 succeeded him as Engineer. When, in 1923, the Maryport & Carlisle became part of the L.M.S.R., an Engineer's District was formed in Cumberland comprising the Maryport & Carlisle, Cleator & Workington Junction, and Cockermouth, Keswick & Penrith Railways, the L.N.W.R. West Cumberland Section, and that part of the Caledonian Railway which lay between Brayton and Bowness-on-Solway, and was called the West Cumberland District, and Mr. Brown was appointed District Engineer. In 1928 he was promoted to the Leeds District, comprising the old Midland lines between Barnsley, Cudworth and Carlisle, and the old Lancashire & Yorkshire lines between Wakefield and Goole, including the Dearne Valley line.

Mr. A. G. Dawson has been appointed Assistant Cashier, Southern Railway.

Mr. A. G. Ticehurst has been appointed Plant Assistant to the Chief Engineer, Great Western Railway.

Mr. Walter J. Plogsted, Assistant to President, General Railway Signal Company, U.S.A., who has been appointed Vice-President in charge of Export, was born in Buffalo, N.Y., on September 21, 1880. He graduated from Rensselaer Polytechnic Institute at Troy, N.Y., in 1903 with a bachelor's degree in civil engineering. After holding various positions in connection with signalling and other railway work, he joined the General Railway Signal Company at Rochester, N.Y., in 1906 as Assistant to the Commercial Engineer on the design of signal and interlocking installations. In 1908 he became Resident Engineer and Superintendent of Construction in New York, handling estimates, design and construction of automatic signalling and interlocking for railways in the eastern territory, and was Resident Engineer on signalling for the New York Central Electric Zone and terminal. In 1913 Mr. Plogsted was placed in charge of sales, design and construction, residing in Australia and New Zealand. He returned to the U.S.A. in 1921 as Export Manager at Rochester. In 1926 he left for England to take over as Managing Director of the General Railway Signal Co. Ltd., and in 1930 formed Railbrakes Limited of London and became its Managing Director in addition to his other duties. In November, 1939, he returned to the General Railway Signal Company at Rochester, U.S.A., and in 1940 was appointed Assistant to the President. Mr. Plogsted is a member of the Signal Section, Association of American Railroads, and a life member of the American Society of Civil Engineers.

Lord McGowan has been elected President of the British Standards Institution in succession to Lord Woolton. Sir Clifford Paterson has been elected Chairman of the General Council, in succession to Sir William Larke.

Sir Leslie Boyce, Alderman and Loriner, has been elected a Sheriff of the City of London for the ensuing year. Sir Leslie Boyce is Chairman & Managing Director of the Gloucester Railway Carriage & Wagon Co. Ltd.

Mr. D. I. Leslie Doran has been appointed Technical Officer for the Engineering Centre at Glasgow, and is already working on the organisation of the advisory service which is to be a feature of the centre when it opens in Sauchiehall Street at the end of September.

G.W.R. Architect

Mr. F. F. Curtis, D.Eng., A.R.I.B.A., has been appointed Architect to the Great Western Railway. Mr. Curtis, who is 43, was lecturer in Liverpool School of Architecture from 1936-46, and during the recent war served in the R.E. as Staff Officer at G.H.Q., India Command.

Mr. J. R. Sainsbury, A.M.I.C.E., Resident Assistant Engineer, Newport Docks, Great Western Railway, has been appointed Resident Engineer for the North & South Shields Docks of the Tyne Improvement Commission, and is leaving the G.W.R. service to take up that position. Mr. Sainsbury joined the engineering staff of the G.W.R. at Paddington in 1929. He was transferred to the Divisional Docks Engineer's staff at Barry Docks in 1930, where he was engaged on many of the new works schemes carried out at the South Wales ports in the years before the war. He was commissioned in the R.E. (S.R.) in 1937, and he saw service throughout the war. He was released from the Army in January, 1946, with the rank of Lt.-Colonel. During that period he was engaged on the construction of the military ports at Gareloch and Cairnryan and the development of the floating equipment for the Mulberry harbours. He took part in the initial construction of the Mulberry port at Arromanches, the clearance of the North Belgium canals and the repair of the lock entrances at Flushing, for which work he was mentioned in dispatches. Before leaving the Army he was Port Civil Engineer for the German Baltic Ports in the British Zone. Mr. Sainsbury is the only son of the late Mr. J. Sainsbury, of the General Manager's Department, G.W.R.

Mr. F. C. Smith, Works Manager, Mr. L. C. Ellis, Chief Engineer, and Mr. E. H. Hilton, Secretary, of the Visco Engineering Co. Ltd., have been elected Directors.

Mr. E. Hurley, M.B.E., Royal Train guard, and senior guard at Paddington, Great Western Railway, has retired after 55 years' service. He was guard on the Royal Train from 1933 until 1945.

Mr. Walter Johnson has resigned the appointment of Secretary of Thos. W. Ward Limited after 27 years in that position, retaining his Directorship. Mr. Herbert Beresford succeeds him as Secretary.

The directors of British Insulated Callender's Cables Limited announce that, the initial work arising from the amalgamation having been completed, Mr. T. H. Martin-Harvey and Mr. Charles Pipkin have, in accordance with their wishes, resigned as Deputy-Chairmen. Mr. W. H. McFadzean and Mr. P. V. Hunter have been appointed Deputy-Chairmen. Mr. T. H. Martin-Harvey will continue as a Director, but Mr. Charles Pipkin, at his own request, has resigned from that position.

Mr. W. A. Fairhurst has been appointed Technical Director of the Cement & Concrete Association. He remains Senior Partner of F. A. Macdonald & Partners, Glasgow. Mr. Fairhurst is the author of "Arch Design Simplified" and of "Reinforced Concrete Bridges," shortly to be published.

L.M.S.R. APPOINTMENTS

Mr. H. Neild, Resident Storekeeper, Carriage & Wagon Stores, Wolverton, to be Resident Storekeeper, Carriage & Wagon Stores, Derby.

Mr. J. Chambers, Resident Storekeeper, Carriage & Wagon Stores, Earlestown, to be Resident Storekeeper, Carriage & Wagon Stores, Wolverton.

Mr. W. J. Stevenson, Assistant Head of Section, Chief Stores Superintendent's Office, Watford H.Q., to be Resident Storekeeper, Carriage & Wagon Stores, Earlestown.

Mr. A. Woodley, Chief Inspector, Police Department, Birmingham (New Street), to be Police Superintendent, Birmingham (New Street).

Mr. R. M. Davis, Joint Goods Agent, Burton (L.M.S.R. & L.N.E.R.), to be Assistant to District Goods Manager, Wolverhampton.

Mr. A. R. J. Icke, Chief Claims Clerk, District Goods & Passenger Manager's Office, Derby, to be Joint Goods Agent, Burton (L.M.S.R. & L.N.E.R.).

Mr. E. Williams, Goods Agent, Canada Dock & Bankfield, to be Goods Agent, Birkenhead.

Mr. C. N. Matthews, Chief Claims Clerk, District Goods Manager's Office, Liverpool, to be Goods Agent, Canada Dock & Bankfield.

Mr. J. E. Harrison, Head Office Inspector (Station Analysis), Chief Operating Manager's Office, Watford H.Q., to be Goods Agent, Sheffield (Queen's Road & City).

Mr. J. Smith, Chief Accounts Clerk, District Goods Manager's Office, Bolton, to be Goods Agent, Accrington.

Mr. W. E. Allen, District Controller, Kirkby-in-Ashfield, to be Yardmaster, Kirkby-in-Ashfield.

Mr. T. H. Wakefield, District Controller, Toton, to be Yardmaster, Toton.

Mr. H. Field, Assistant District Controller, Warrington, to be Yardmaster, Warrington.

Mr. A. G. H. Rickett, Stationmaster & Goods Agent, Purfleet, also in charge Purfleet Rifle Range, to be Stationmaster, Luton, also in charge of Luton, L.N.E.R.

Mr. G. W. Huxley, Head Office Inspector (Relief), Divisional Operating Manager's Office, Manchester (located Wakefield), to be Stationmaster, Wakefield (Kirkgate).

Mr. J. W. Edgar, Assistant Stationmaster, Heysham, to be Stationmaster, Fleetwood, also in charge of Wyre Dock (Passenger) & Burn Naze.

Mr. C. C. Harrison, District Foreman, Carriage & Wagon Department, Ashton Road, to be District Foreman, Carriage & Wagon Department, Sheffield.

Mr. W. J. Groom, Foreman, Carriage & Wagon Department, Sheffield, to be District Foreman, Carriage & Wagon Department. Ashton Road.

Mr. D. Wright, Inspector, Outdoor Carriage & Wagon Assistant's Office, Manchester, to be District Foreman, Carriage & Wagon Department, Longsight.

Mr. W. E. Withers, Assistant District Foreman, Road Motor Engineer's Department, Bradford, to be District Foreman, Road Motor Engineer's Department, Blackburn.

The Transport Bill in the House of Lords

Conditions of employment: Basis of compensation for road transport services: Conclusion of Committee stage

The Transport Bill was considered further in the House of Lords on Wednesday, June 25, when Lord Mancroft moved an amendment to provide that the Commission should not be enabled to make it a condition of employment that any person should or should not be a member of any particular trade union.

It was undesirable that a State monopoly should be able to make a membership of a particular union a condition of service. It was undesirable, also, that the State should have the power to make a working man industrially untouchable, although he had spent the whole of his life in the industry and knew no other trade.

If the State should see fit to favour a particular union, a private monopoly would arise backed by a public monopoly. There was nothing in the amendment which touched 100 per cent. trade union membership.

"THE BREAKAWAY UNION"

Lord Walkden, replying, said that the Government could not accept the amendment, and he was rather surprised that it had been moved. There was nothing worse than a breakaway union. One such union had been formed in the L.P.T.B. by a few men who did not like a settlement that Mr. Bevin had made. They were a source of cantankerous difference until the other men said they could not work with them. In the labour world it was an awful job when there was an infinity of little unions in existence.

The L.P.T.B. service was going on better and happier than when those fellows were in their midst. The Commission should be free to make what arrangements it thought best for the welfare of the industry with the great responsible unions. Nobody should say they must not have a closed shop.

Lord Swinton described the speech by Lord Walkden as a curious one. What it amounted to was that people must not remain outside a union if the Minister thought it was right that they should join. The last speech he had read by Mr. Bevin was one of the most eloquent he had ever delivered against the State in which men were forced into one party. Under this Bill will it not be within the power of the Commission to give a direction to men to join one particular union?

Lord Reading, speaking for the Liberals, said that Lord Walkden had made an astonishing speech, and in some ways a rather shocking one. He wondered if Lord Walkden thinking back realised what he had said and whether he meant to convey the impression that he had conveyed to some. Was he really saying that a man who chose to join some union which was, perhaps, not the big union, made that choice because he was suffering from an inflated ego?

Lord Dukeston begged the peers to get away from the position of abstract liberty. Unless they could get a balance in such matters, then they were going to see this business fought out in a manner inimical to the interests of industry and inimical to the interests of the State. No one wanted to see anarchic elements on the trade union side of industry any more than on the employers' side, but if the amendment was carried and became law, it would create such resentment among the trade union element in this country that it would bring disaster. The amendment was, by leave, withdrawn.

Lord Balfour of Burleigh moved a new clause to provide for compensation to be paid to officers and servants of the railway companies who suffered loss or diminution of emoluments or pension rights or whose position was worsened by the Bill. He said that the new clause provided only for the retention of the rights which railwaymen already possessed.

Lord Walkden said that compensation and other staff arrangements could be better dealt with by regulations than by Act of Parliament. An advantage was that regulations could be amended and adjusted fairly easily. Every effort would be made to treat the railwaymen decently and properly in regard to these matters.

Lord Addison undertook to discuss with his colleagues whether it was possible to make use of a suggestion made by Lord Swinton to have regulation in draft rather than in a finalised form, so that there would be opportunity for them to be discussed.

Lord Balfour of Burleigh withdrew his amendment.

Lord Selkirk, speaking on the clause dealing with additional compensation to local authorities, said that a situation existed in Glasgow which was unique in this country because its transport undertaking did not belong in the ordinary sense to the corporation but to the common good, which was a trust in which all the citizens were beneficiaries and of which the council were the members. An effect of this Act was to deprive the citizens of about £10,000,000, for that was approximately the value of the transport undertaking, and they would be paid the sum of £200,000.

On Thursday, June 26, when the Committee stage of the Transport Bill was completed in the House of Lords, Lord Addison moved an amendment providing that, for the purpose of compensation, the net annual profit for the three years ending 1948 should be taken into account, instead of the three years immediately preceding the date of transfer to the Commission in the case of a public service undertaking.

This would have the effect of increasing compensation. The scheme of compensation provided, he suggested, was a generous one, and in this particular case he had been advised that if it was carried out it would be rather significant.

In the case of the B.E.T. Omnibus company, the average price on the Stock Exchange on November 8, 1946, was 91, and in May it was round about 97. Then came an indication of favours to come and the figure jerked up to 103. "Then came the publication of my amendment on the paper," he said, "and there was a jump up to 110."

The amendment was accepted.

ANNUAL PROFIT AND E.P.T.

Opposition peers threatened a division on a Government amendment moved by Viscount Addison to the ninth schedule defining the meaning of "average net annual profit" in regard to road transport undertakings for the purpose of compensation for cessation of business.

This amendment provided that, in ascertaining profits or losses, the amount of

any liability to excess profits tax or to profits tax should be taken into account, and that such sums should be debited.

The Earl of Selborne complained that excess profits tax had been inequitable in its operation, and that if the Government proposal was now accepted, it might well set a precedent for other Bills which the Government might introduce.

When the Marquess of Salisbury, Leader of the Opposition, suggested that the Lord Chancellor should take the proposal back for further consideration, the Lord Chancellor observed that it would be obviously undesirable to leave the matter in a state of uncertainty.

The Marquess of Salisbury protested that, again and again, the Opposition had refrained from pressing amendments to a division because it wanted to secure agreement. Would the Leader of the House consider a further amendment or a new proposal, or even consider the Government amendment again when it reached the Report stage?

Viscount Addison promised to hold over the amendment until the Report stage, pending examination, but the Government must decide to press it then.

The House concluded the Committee stage of the Bill.

Parliamentary Notes

Southern Railway Bill

The Southern Railway Bill was read the third time, and passed, without amendment, in the House of Commons on June 17.

L.P.T.B. Bill

The Duke of Westminster and the Improved Industrial Dwellings Co. Ltd. have deposited petitions against the London Passenger Transport Board Bill.

L.M.S.R. Bill

The London Midland & Scottish Railway Bill was read a second time in the House of Lords on June 19. Petitions against this Bill have been deposited by the Lancashire County Council, Kearsley Urban District Council, and Little Lever Urban District Council.

Questions in Parliament

Punctuality on Railways

Mr. W. M. F. Vane (Westmorland—C.) on June 9 asked the Minister of Transport what instructions had been issued by his department affecting the making up of lost time by the drivers of passenger trains in order to try to maintain punctuality.

Mr. Alfred Barnes (Minister of Transport) stated in a written answer: None, but I am informed that the companies' rules require drivers to regulate the running of their engines to ensure punctuality so far as practicable, due care being taken to avoid excessive speed.

Closing of Elham Valley Line

Mr. J. Baker White (Canterbury—C.) on June 16 asked the Minister of Transport if he was aware that it had been announced that the Elham Valley line of the Southern Railway was to be closed both to goods and passenger traffic as from June 16; that that closing would cause great hardship to farmers, traders, and the public in general; and if he would make a statement.

Mr. Alfred Barnes: I am informed that the Elham Valley line will be officially closed to passenger and goods traffic as from today. The number of passengers using the line averaged only about a dozen a day in each direction, and the district is well covered by bus services. Parcels and "smalls" traffic can be delivered from Canterbury and Shorncliffe Stations. The railway company will continue to provide facilities on the branch for dealing with the small quantity of full truck-load goods traffic until satisfactory alternative arrangements have been made.

Mr. White: Will the Minister represent to the railway company that the cutting off of present supplies of coal and agricultural supplies will cause the greatest inconvenience over a considerable area?

Mr. Barnes: I am informed that only six wagons a day come in, and only one wagon a day goes out on this particular line, but in any case I have indicated that the company is going to see that that continues until other arrangements are made.

Euston-Manchester Sleeping Berths

Mr. R. K. Law (South Kensington—C.) on June 16 asked the Minister of Transport if he would give the list of categories in the priority groups for whom 43 per cent. of the first class sleeper accommodation was reserved on the night trains between Euston and Manchester.

Mr. Alfred Barnes in a written answer stated: The percentages of priority passengers in each category, for whom first class berths were reserved on the Manchester route during four recent weeks, were:—(1) Business and professional, 46.5 per cent.; (2) Ministers, Peers, and Members of Parliament, 45.5 per cent.; (3) Civil Servants, 7.5 per cent.; (4) Armed Services, 0.5 per cent.

Summer Railway Services

Mr. Ellis Smith (Stoke—Lab.) on June 16 asked the Minister of Transport if he would make arrangements for those who had been engaged in productive industry or essential services to have priority on Saturdays during July and August; that reasonable travelling facilities be arranged when they were going on their annual holidays; if passenger traffic would be regulated or priority tickets given; and, where necessary, if extra trains would be put on to avoid the standing and other conditions of the past.

Mr. Alfred Barnes stated in a written answer: No; such a scheme would be impracticable. The number of trains run this summer will be limited by the necessity to save fuel.

South Wales Ports

Mr. D. J. Williams (Neath—Lab.) on June 23 asked the Minister of Transport if it had been decided at what ports the coal to be imported from the U.S.A. would be unloaded; and if consideration was being given to the possibilities of using the ports of South Wales for that purpose.

Mr. Peter Freeman (Newport—Lab.) also asked the Minister of Transport if he would arrange that any import of coal from the U.S.A. or elsewhere should be received at the ports of the South Wales development area, in view of the facts that all the necessary facilities already existed and that transport could most conveniently be arranged from that district.

Mr. Alfred Barnes stated in a written answer: It is my present intention to use ports in the South Wales development area for the reception and discharge of imported coal.

Staff and Labour Matters

Railway Professional Technical Staff

The Railway Staff National Tribunal has issued its decision (No. 10) on the claim of the Railway Clerks' Association in respect of rates of pay and conditions of service of railway professional and technical staff. The tribunal heard the parties on April 17, as recorded in *The Railway Gazette* of April 25 last.

The tribunal has awarded a number of minimum scales. It has also awarded that the rates be increased by £10 per annum to staff whose salaries do not exceed £438 per annum inclusive and whose employment is in London. Staff whose rostered hours extend beyond 10 p.m. or commence before 6 a.m. shall be paid time and a quarter during those hours. Overtime shall be paid on the same scale and subject to the same conditions as at present apply to clerical and supervisory staff. Payment shall be made for all authorised duty between midnight Saturday and midnight Sunday at the rates provided for, and on the conditions applicable to, members of the clerical and supervisory staff.

The tribunal states that it sees no reason to apply to the comparatively small number of employees covered by the claim allowances on a different footing from that governing allowances generally prevailing at present for other sections of railway staff.

L.P.T.B. Road Staff

A recent agreement between the London Passenger Transport Board and the Transport & General Workers' Union, which results from negotiations between the parties on the conclusions of a committee of investigation appointed by the Minister of Labour to inquire into an application by the unions for improved conditions of service, provides for common conditions of service for the drivers, conductors and maintenance workers of the Board's road traffic staffs.

The principal feature is the reduction in the standard week from 48 or 47 hours to 44 hours without reduction in the weekly rates of pay. In addition to the present two weeks holiday an additional day's holiday with pay will be given in respect of each of the six public holidays on which staff are required to work or are available for work.

It is recognised that, with the present shortage of manpower, it will not be possible to find the additional staff required to work the new schedules, and it has been agreed that arrangements will be made to cover them by overtime working until the manpower position permits of the recruitment of the additional staff required. Similarly, it will not be possible to give additional days in respect of public holidays, and payments will be made until the additional staff can be recruited.

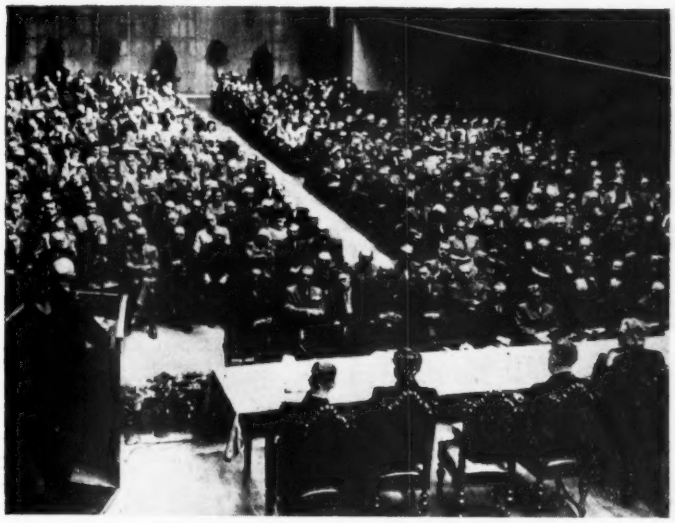
Locomotive Firemen

The decision of the Chairman of the Railway Staff National Tribunal was published recently on the following claim, submitted to him as a question of interpretation of existing agreements by the A.S.L.E.F. and N.U.R.: to determine the rate payable to firemen who have performed 313 driving turns, but have not completed 10 years service as a fireman.

The Chairman found, as a matter of interpretation, that the rate payable to firemen who have performed 313 driving turns but have not completed 10 years service as a fireman is the rate provided for a fireman at his eleventh year, which rate constitutes the maximum fireman's rate as provided by the firemen's scale.

International Railway Congress

Opening ceremony of 14th session at Lucerne



Scene at the opening of the congress during the speech by Dr. Philipp Etter (at rostrum on left)

The official opening ceremony of the Lucerne meeting of the International Railway Congress Association took place on June 24. On the previous day delegates were received by the Permanent Committee of the association, headed by Monsieur F. H. Delory, General Manager of the Belgian National Railways.

Dr. W. Meile, President of the General Management, Swiss Federal Railways, and head of the Swiss Executive Committee of the congress, presided at the opening ceremony on June 24, which was attended by representatives of the Swiss Federal Councillors, the Federal Administration, all Swiss transport undertakings, and of the Canton and town of Lucerne, and other officials. The opening was held in the great hall of the Congress Building, where also the delegates' meetings have taken place.

In his opening speech Dr. Meile welcomed those present in the name of the Swiss Executive Committee. He said it was for various reasons that they had invited the International Railway Congress Association to come to Switzerland. First, it was because they thought Switzerland to be a country whose climate of peace would do good to all countries and all people; and secondly, because they felt a particular solidarity with their friends from all railway administrations all over the world.

Finally, they invited leading railwaymen from all over the world because of the centenary celebrations of the Swiss railways. It would be a hundred years on August 9 since the first Swiss railway began its activities on the Zurich-Baden line. The centenary of Swiss railways would be commemorated within the framework of the International Railway Congress and would become an occasion of joy and grateful remembrance.

Dr. Philipp Etter, President of the Swiss Confederation, opened his speech with greetings to the delegates in the name of the Federal Council and the Swiss people. He said that if any type of work needed to be associated with the ideal of service then it was the work carried out by the railwayman.

After reviewing briefly the history of the Swiss Confederation, Dr. Etter said that every international congress meeting in these days, after the hard years of war and destruction, endeavoured to realise a measure of international solidarity and co-operation. This was particularly true of their congress at Lucerne.

Monsieur F. H. Delory, President of the Permanent Committee, thanked the Federal authorities and the Executive Committee on behalf of the management of the congress and the delegates. He proposed the following appointments for the session: Dr. W. Meile as Chairman and MM. R. Cottier and A. Marguerat as Deputy-Chairmen. This proposal was adopted.

Official Dinner to Delegates

On June 26 the delegates were entertained at an official dinner given in their honour by the Swiss Federal Council, and the Executive Committee of the Congress. An address was delivered by Dr. E. Celio, a Federal Councillor, and Head of the Swiss Postal & Railway Department. He said that during the war, railwaymen had been indispensable to the fighting armies, and today they were working for reconstruction and peace.

Monsieur F. H. Delory, General Manager of the Belgian National Railways, and President of the Permanent Commission of the Congress, expressed his thanks for the exemplary organisation of the affairs of the congress in Switzerland.

Sir William V. Wood, President of the Executive, London Midland & Scottish Railway, also expressed his thanks to Switzerland and to Lucerne for the excellent organisation of the Congress. He expressed his satisfaction that, in the field of transport, which was a civilising factor of the first importance, the work of reconstruction had made such promising progress.

Left to right: Mr. Miles Beevor, Acting Chief General Manager, L.N.E.R.; Mr. L. H. K. Neil, Continental Traffic Manager, L.N.E.R.; and M. Cottier, Director of the Swiss Federal Transport Office

Left to right: M. Bratschi, Councillor of State and General Secretary of the Swiss Railwaymen's Union, in conversation with Mr. J. Benstead, General Secretary, National Union of Railwaymen, during the opening meeting of the International Railway Congress

East Indian Railway Officers' Association Dinner

The 44th annual dinner of the East Indian Railway Officers' Association was held at the Connaught Rooms, London, W.C.2, on Friday, June 27. Sir Robert E. Marriott presided, and among those present were:—

Messrs. H. J. Allinson, P. N. H. Baker, C. V. Bliss, C. H. J. Bolton, G. W. Browne, W. C. Cartland, A. J. Clark, Sir George Colvin, Messrs. B. W. C. Cooke, H. A. Davis, W. H. Denby, A. Devon, H. G. Emmerson, C. Eyers, J. C. Gibson, A. W. Goldsack, A. R. Gundry, P. Hackforth, Sir Hugh Hannay, Messrs. R. C. Harvey, C. G. B. Hinchey, H. Howe, G. R. G. Huddleston, H. G. Jones, J. C. Lamb, G. T. Lemon, E. H. N. Lowther, A. McDougall, F. G. S. Martin, E. G. Moyes, R. R. Parker, Dr. G. E. Paul, Messrs. F. A. Pope, H. W. Puttick, S. F. Roberts, F. E. Robertson. Sir Archibald Rowlands, Messrs. C. F. Satow, H. H. Saunders, B. Severs, J. V. Severs, H. J. A. Slator, A. G. Stavridi, R. Strick, L. H. Swain, R. Lionel Tanner, D. F. Tawse, J. S. Tritton, A. V. Venables, H. C. Wallace, R. M. Watson, W. W. Whitney, A. V. Woodward, H. H. Yule.

Sir Robert Marriott, in welcoming the guests, said that he was very conscious of the honour that had been paid him in inviting him to be Chairman, because he believed that he was the first non-East Indian Railway Company Officer to preside at that function.

He thought that the East Indian Railway Company always had been very individualistic and a law unto itself. He thought, too, that the amalgamated railway had always carried on that tradition. Sometimes, perhaps, it might have been of too independent a mind, and had gone ahead too quickly for the Railway Board.

During the war, however, he thought the Railway Board had appreciated the efforts of the railway, and he did not think that the line had ever let the Board down, even when it had been visited by a succession of catastrophes such as famine, floods, and so forth.

He was very pleased to see that after a long period of Western and North Western domination, an officer of the East Indian Railway was again acting as Chief Commissioner of the Railway Board. Sir Archibald Rowlands was a man who had no fear of making decisions, and one who believed in getting on with the job. Among their other guests, Mr. Pope needed no introduction; he was widely respected as a railwayman and as one who got things done without fuss.

Extensive New Works Completed

The Chairman went on to refer in some detail to a number of new works which had been undertaken on the railway since the war. These included the limitation of bottlenecks, the erection of new stations, the laying in of new lines, and work on bridges. Extensive schemes for improvement of coaching stock, especially third class stock, were in hand, and at long last inter-class was to be abolished. Facilities at passenger stations were being very much increased.

He went on to pay a tribute to the work which had been done by British railwaymen in India; he said that in their own sphere they had left a magnificent monument of achievement in the railways which had been built by the British. Railwaymen were international and outside politics. He had had experience of the value of this international spirit during his stay in Germany recently. It had been strikingly demonstrated on the Indian railways, and he had received a report which had stated that during the disturbances in August, 1940, there had not been a single communal incident among the East Indian Railway staff, and, moreover, 70 per cent. of passenger services had been maintained.

Sir Archibald Rowlands, responding for the guests, said that the hospitality of the East Indian Railway was world famous, and he was reminded of a friend of his who, when asked whether he was attending one of its functions, had excused himself on the plea that he could hardly ask for three days off to go to a dinner!

He thought that Mr. Frank Pope was far better fitted to respond to the toast than he was, because he (Sir Archibald Rowlands) belonged to the silent branch of the Civil Service. He did not know what the effect would be of the nationalisation of railways, but he was convinced that one of the strongest forces making for unity in India would be the operation of communication services. The railway personnel, in the carrying out of their function, would see the need for unity, and would demonstrate it to others.

Mr. Frank Pope said that he had had to deal with the East Indian Railway for about 16 years. He had known a great number of East Indian Railway officers, and he had always enjoyed a great friendship and a happy time with them. Moreover, in his contacts with them he had learned a lot. When he had first gone out to India it had been with the remit of advising on railway operation, but when he came back he had told Lord Stamp that he had learned more from them than they had from him.

Augmenting the Tyne-Bergen Passenger Service

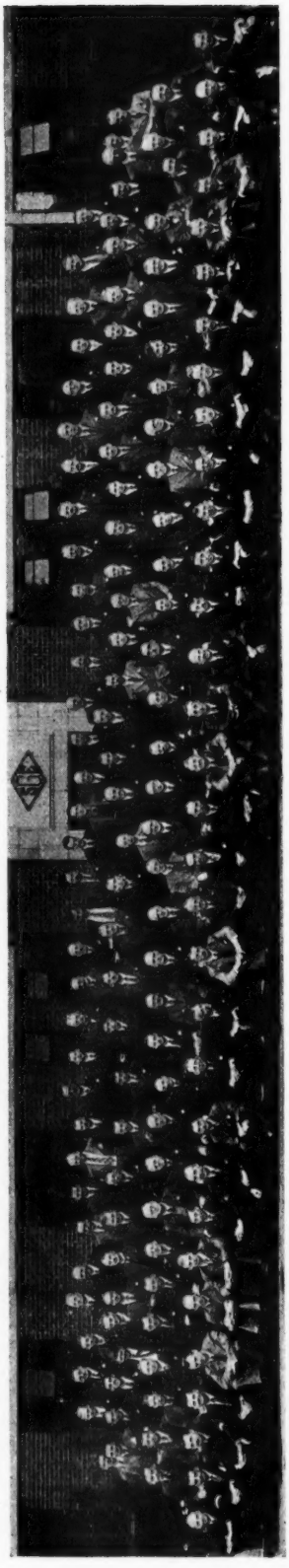
A large party of guests was entertained on board mv. *Stella Polaris* in the Thames, just below London Bridge, on Thursday in last week. They were welcomed on board by Mr. Thomas S. Falck, Junr., Chairman & Managing Director of the Bergenske Steamship Company, which owns the ship and has diverted her from her normal cruising to augment the service between Newcastle-on-Tyne and Bergen. Special rail connections are provided by the L.N.E.R. from Kings Cross to the Tyne.

The *Stella Polaris* has been recalled to take the place of the *Venus*, which was badly damaged in Hamburg during the war, and which is being rebuilt to carry 460 passengers instead of 279. She was built exclusively for cruising, and after the liberation was found in Narvik harbour in such a bad condition that it took a year to recondition her, at a cost 50 per cent. higher than the original cost of building. She now enters the service between the Tyne and Bergen with the two other ships, making in all four sailings a week, enabling about 700 people to cruise to Norway and back weekly. This is in addition to the service maintained between the Tyne and Oslo.

It is hoped next year to increase the capacity from 700 to about 1,200. In 1939, the total number of passengers carried between England and Norway was about 2,200 a week, but by next year it will not be more than 1,800, including airborne passengers.

If various existing restrictions are eased, however, it may be possible to release the *Stella Polaris* for cruises from this country to Norway and the North Cape, in which capacity she was popular before the war.

Institution of Railway Signal Engineers' Summer Meeting



Members at the one-day meeting at the G.E.C. Wembley industrial estate on June 20 (see our June 27 issue)

Inter-Railway First-Aid Competition

The inter-railway first-aid competition was held recently at the Borough Polytechnic, London, S.E.1, when nine teams participated, two from each of the four group railways, which had been selected by a series of competitions organised by the respective companies, and one team from the ungrouped railways, selected by a preliminary competition arranged by the St. John Ambulance Association. The result of the inter-railway contest was as under:

	Marks
1st—Horsham (S.R.), winner of challenge shield	458½
2nd—Swindon (G.W.R.), winner of "Corbet Fletcher" Cup	426½
3rd—Crewe Works Machine Shop "B" (L.M.S.R.)	411
4th—Wolverton Works (L.M.S.R.)	388
5th—March "A" (L.N.E.R.)	377
6th—Waterloo No. 1 (S.R.)	374
7th—Melton Constable (M. & G.N. Joint) ...	373½
8th—Nottingham Victoria (L.N.E.R.) ...	369
9th—Cardiff Docks (G.W.R.)	347½

The adjudicators were Dr. A. C. White Knox, of London; Dr. William Duncan, of Liverpool; and Dr. W. L. M. Bigby, of Southampton, and the arrangements were carried out by Mr. G. E. Craft, Competition Secretary.

The subsequent proceedings were presided over by Brigadier W. B. G. Barne, Secretary-General of the Order of St. John of Jerusalem, who remarked that it was the 50th anniversary of the inter-railway first-aid competition, which had been inaugurated in 1897. The result of the competition was announced by Major-General F. V. B. Witts, Assistant Director of Ambulance, and the trophies and prizes were presented by Sir Robert Burrows, Chairman of the L.M.S.R.

First-Aid Post at Waterloo Station

An innovation in the welfare services provided by the Southern Railway is the new medical room and first aid post at Waterloo Station. As was reported briefly in our last issue, this was officially opened by Sir Eustace Missenden, General Manager, on June 24, and it represents the first service of its kind at a London terminal station. The aim of the Southern Railway is to develop this service in the future.

The medical post, which consists of a waiting room, surgery, and staff rest room, is situated opposite Platform 12, and is available to any of the 186,000 passengers who daily pass through the station, as well as to the 2,000 members of the staff employed there. It is under the supervision of Dr. L. J. Haydon, Chief Medical Officer, and three nursing sisters are in charge, Miss E. L. Hitch, Miss M. Scobie, and Mrs. F. M. Carter, each of whom holds the Industrial Nursing Certificate. The nursing staff is mobile, and its activities, therefore, are not confined solely to the station area.

Sir Eustace Missenden, General Manager, Southern Railway, with Dr. L. J. Haydon, Chief Medical Officer, Mr. F. Gilbert, Deputy-Chief Officer for Labour & Establishment, Mr. J. H. Chitty, Welfare Officer, and the nursing staff at the opening of the first-aid post at Waterloo

L.N.E.R. Tarpaulin Experiments

Several new materials and proofing processes have been applied to wagon and cartage sheets (tarpaulins) by the L.N.E.R. as a result of research conducted by the company at Gidea Park. The object of the experiments was to reduce weight, improve durability, and overcome certain disadvantages associated with linseed proofing, notably the tendency of linseed to remain tacky and to attack the canvas.

An exhibition of the new sheets, displayed alongside older types for comparative purposes, has been held at Marylebone Goods Station from July 1 to July 4. Mr. A. Forbes Smith, Traffic Stores Superintendent, L.N.E.R., who conducted members of the Press round the exhibition on July 1, said that the company had a working stock of 150,000 wagon sheets, representing a capital investment of £1½ million. There was a weekly output of 500 sheets from the company's works at Gidea Park, Melton Constable, and Newcastle. Repairs were carried out at Bishopsgate, Peterborough, and Edinburgh (St. Margarets), and it was found that a linseed-proofed sheet of the old type required on an average 40 repairs after 12 months' service. Sheets were given an overhaul every six months. If re-proofing was necessary, the process took a month. Using Neoprene for proofing saved weight and resulted in greater flexibility, with consequent easier handling. The proofing was carried out in the course of manufacturing the material.

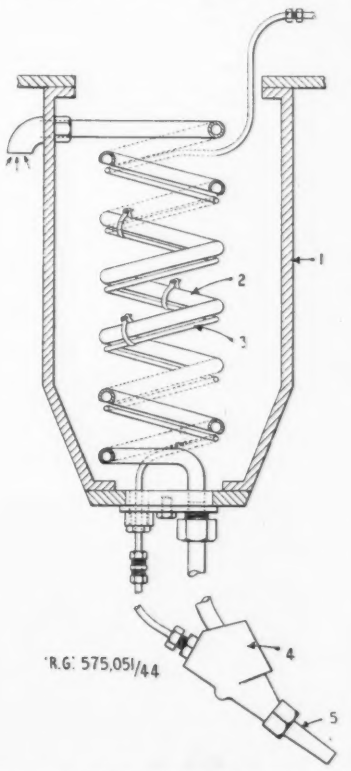
The experimental sheets exhibited were made of Nylon, flax, and cotton duck. A flax sheet proofed with Neoprene weighs only 48 lb., as against the 70 lb. of the standard type. An experimental extra-light Nylon sheet with Neoprene proofing has been produced with a weight of 39 lb. Neoprene proofing, originally developed for use in the Pacific war zone, stands up to exacting climatic conditions. Nylon is highly resistant to abrasion, and has shown no effect whatever after 20,000 revolutions of the test machine roller, whereas flax canvas breaks down after 10,000 to 12,000 revolutions.

Abstracts of Recent Patents*

No. 575,051. Track Sanding Apparatus

London & North Eastern Railway Company, of Marylebone Station, London, and W. Downs, of 8, Adamson Street, Shildon, Durham. (*Application date*: *February* 23, 1944).

A track sanding device comprises a sand box 1 inside which is a coiled tube 2, slotted along its lower surface adjacent to a steam pipe 3, the two being brought together in a distributor 4 leading to a nozzle 5. When the steam is turned on, the suction in the distributor draws sand up into the tube 2, and along it to the delivery nozzle. At the same time, the sand adjacent to tube 2 is dried by heat of the steam immediately prior to being drawn into the sand pipe.



* These abridgments of recently published specifications are specially compiled for *The Railway Gazette*, by permission of the Controller of His Majesty's Stationery Office. Full specifications can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, price 1s. each

Notes and News

Electric Traction Engineer Required.—An electric traction engineer is required by a firm of consulting engineers in London. See Official Notices on page 27.

Richard Klinger Limited: Branch Office.—A new branch office and depot has been opened by Richard Klinger Limited, makers of Klingerit compressed asbestos, jointing, boiler fittings, etc., and is located at 19, Queen Street, Newcastle-on-Tyne.

Hunslet Engine Company Delivers Locomotives for India.—The Hunslet Engine Co. Ltd. is busy on the delivery of a batch of narrow-gauge 0-6-2T locomotives to India for mixed-traffic service. These engines have 10½-in. by 16-in. cylinders and weigh about 24½ tons in full working order.

Danish Railway Centenary.—The centenary of railways in Denmark was celebrated on June 27, the hundredth anniversary of opening the Zealand Railway between Copenhagen and Roskilde. By 1880 the Zealand Railway had built all the routes now forming the main lines on Zealand, but in that year the company was taken over by the State. In Jutland and Funen, railway building did not begin until 1862. These lines, most of which were built by British engineers, were acquired subsequently by the State.

Overseas Interest in The Engineering Centre.—Mr. G. Gordon Jackson, Managing Director of The Engineering Centre, recently has returned from Sweden, where he has spent three weeks setting forth the aims and objects of this new project, previous references to which were made in our April 18 and May 30 issues. Other directors also have been making every effort to stress the value of the centre to overseas buyers; for example, the Vice-Chairman, Mr. E. Bruce Ball, who is Managing Director of Glenfield & Kennedy Limited, has been speaking on the subject on every possible occasion during an extensive tour of East Africa, Egypt, and Palestine, and Mr. Iain M. Stewart, Managing Director of Thermotank Limited, has been selling the project in Portugal.

Acquisition of British Railways in Argentina.—A Reuters message from Buenos Aires reports that semi-official sources there have indicated the middle of September as the probable time when the Argentine Government will take over the British-owned railways.

Autonomous Administration for Saar Railways.—Reuters reports from Paris that it was announced in Saarbrucken on June 18 that the railways of the Saar are to become an autonomous concern. The decision was taken by the French occupation authorities. Hitherto, the railways have been operated by the German Reichsbahn.

L.M.S.R. to Increase Heysham-Belfast Sailings.—The L.M.S.R. announces that sailing on the Heysham-Belfast Irish cross-channel route are to be increased to once daily in each direction on weekdays from July 7 to August 30, 1947, inclusive. In addition, a relief steamer will duplicate the sailings from Heysham on Fridays and from Belfast on Saturdays during the same period. The new sailings will appreciably increase the present service, which is on a four days weekly basis in each direction. Sailing tickets for the new sailings may be obtained free on application; full particulars concerning conditions of issue of sailing tickets are obtainable at any L.M.S.R. station.

New Zealand Orders 3,000 Steel Wagons from British Firms.—The first consignment of 50 all-steel general-purpose wagons for the New Zealand Government Railways is to be shipped from Liverpool by the *Brisbane Star* in the very near future. A further consignment of 150 wagons will follow a few weeks later. These wagons were built at the works of the Metropolitan-Cammell Carriage & Wagon Co. Ltd., Birmingham, and deliveries from this firm will continue at the rate of about 300 a month until the total of 2,000 wagons from Metropolitan-Cammell has been completed. The balance of the order is being handled by R. J. Pickering & Co. Ltd., Glasgow, and Charles Roberts & Co. Ltd., Wakefield. In connection with the above order, special lifting tackle had to be procured by the New Zealand Government from the firm of A. E. Smith-Coggins Limited, Liverpool, to handle the wagons at the ports of loading and discharge.

Scammell Lorries Overseas Liaison.—So that Scammell Lorries Limited, of Watford, may form a closer liaison with its distributors overseas, Mr. L. W. Watts, Assistant Engineer, and Mr. J. R. Blades, Foreign Representative, are giving demonstrations and technical advice in various countries. They recently com-

"Mechanicals" Visit Acton Works, L.P.T.B.

Mr. W. S. Graff-Baker, Chief Mechanical Engineer (Railways), L.P.T.B. (third from left), with members of the Institution of Mechanical Engineers who visited the Acton railway repair works of the L.P.T.B. recently

British and Irish Railway Stocks and Shares

Stocks	Highest 1946	Lowest 1946	Prices July 1, 1947	Rise Fall
G.W.R.				
Cons. Ord.	61½	54½	55	—
5% Con. Pref. ...	126½	107	117½	— 1
5% Red. Pref. (1950)	106½	102½	101½	— 2
5% Rt. Charge ...	140½	122½	129½xd	— 1
5% Cons. Guar. ...	137½	118½	128½	— 1
4% Deb.	129½	106	119½xd	— 1
4½% Deb.	129½	107	119½xd	— 1
4½% Deb.	130½	114	119½xd	— 2
5% Deb.	142½	125	132½xd	—
2½% Deb.	95½	81½	89½xd	—
L.M.S.R.				
Ord.	30½	26½	27½	—
4% Pref. (1923) ...	64	52½	58	—
4% Pref.	86	75½	79	— ½
5% Red. Pref. (1955)	105½	97	98½	—
4% Guar.	108½	100	100	— 1
4% Deb.	120	103	110	— 1½
5% Red. Deb. (1952)	108½	105½	102½	— 1
L.N.E.R.				
5% Pref. Ord. ...	7	5	6½	—
Def. Ord.	3½	2½	3½	—
4% First Pref. ...	59½	50½	54	—
4% Second Pref. ...	29½	25¾	27	—
5% Red. Pref. (1955)	104	97	96½	— 1
4% First Guar. ...	107	98	98½	— 1½
4% Second Guar. ...	101	90	93½	— 1
3% Deb.	104	87½	96	— ½
4% Deb.	119½	102½	110	— 1½
4½% Sinking Fund Red. Deb.	107½	101½	100	— 1½
SOUTHERN				
Pref. Ord.	79½	70	71½	— ½
Def. Ord.	24	19½	22½	—
5% Pref.	125½	107	116½	— 1
5% Red. Pref. (1964)	115½	106½	108½	— 2
5% Guar. Pref. ...	137½	119	128½	— 1
5% Red. Guar. Pref. (1957)	115½	107½	108½	— 2
4% Deb.	129½	105½	119½	— 1
5% Deb.	139½	125½	130½	— 1
4% Red. Deb. (1962-67)	113½	104½	106½	— 1
4% Red. Deb. (1970-80)	115½	104½	107½	— 1
FORTH BRIDGE				
4% Deb.	109	103	100½xd	— 2
4% Guar.	105	102	97½xd	— 1
L.P.T.B.				
4½ "A"	133½	120½	124½	— 1
5% "A"	142½	130½	132½	— 1
3% Guar. (1967-72)...	108	98½	104xd	— ½
5% "B"	128½	117½	119½	—
"C"	64½	56½	61½	— 1
MERSEY				
Ord.	34	30	33	—
3% Perp. Pref. ...	76	69	70½	—
4% Perp. Deb. ...	117½	103	109	— 1
3% Perp. Deb. ...	98	81	90½	— 1
IRELAND*				
BELFAST & C.D.				
Ord.	8⅛	6	7½	—
G. NORTHERN				
Ord.	41⅞	30½	31	— ⅜
Pref.	63⅜	52	47½	—
Guar.	97½	78½	86	—
Deb.	107	97½	100½	—
IRISH TRANSPORT				
Common	19/2½	16/9	14/9	—
3% Deb.	107	100	103	—

* Latest available quotation

OFFICIAL NOTICES

BELLMAN HANGARS for workshops, storage, etc., supplied and erected under licence. 89 ft. 5 in. clear span, 18 ft clear height, 175 ft. long. Door openings for full width at each end if required.—BELLMAN HANGARS LIMITED, Terminal House, Grosvenor Gardens, London, S.W.1. Sloane 5259.

RAILWAY SIGNALLING AND COMMUNICATIONS, INSTALLATION AND MAINTENANCE. A practical guide, especially intended to help Signal Inspectors, Installers, Fitters, Linemen, Draughtsmen, and all concerned with installing and maintaining Signal, Telegraph, and Telephone Equipment. 416 pages. Many illustrations. Cloth, 8s. *By post* 8s. 6d.

ELECTRIC TRACTION ENGINEER required by firm of Consulting Engineers in London to prepare railway electrification schemes. Applications stating age, details of training and experience, and salary required to Box 130, c/o *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

THE RAILWAY SYSTEM OF JAMAICA. A general description of the system and its traffics, with an account of economic problems; the motive power used; and some features of operation. By H. R. Fox, B.Sc., M.Inst.C.E., General Manager, Jamaica Government Railway. Reprinted from *The Railway Gazette*, January 5 and 12, 1945. *Price* 1s. *Post free* 1s. 2d.

CONVERSION OF LOCOMOTIVES FROM COAL TO OIL BURNING. Ministry of Transport plan for converting 1,217 locomotives. Equipment of oil burning locomotives on the G.W.R., fully described and illustrated, which forms the basis of the scheme. Reprinted from *The Railway Gazette*, January 18, August 16 and 30, 1946. *Price* 2s. *By post* 2s. 2d.

BRITISH WORK ON PERSIAN RAILWAYS. The achievements and difficulties of the R.Es. during the 15 months in which they laid the foundation for effective aid to Russia. Reprinted from *The Railway Gazette*, February 2 and 16, 1945. *Price* 1s. *Post free* 1s. 2d.

pleted a visit to the Scandinavian countries, and Mr. Blades is now carrying on the work in the Near East territories.

"Devon Belle" Bookings.—Since the Southern Railway's all-Pullman West of England train, the "Devon Belle," went into service on June 20, so many applications have been received for seats, that the train is now fully booked on Saturdays to the end of August, and on Sundays until mid-August.

A. C. Wickman Limited Acquires Diaplastics Limited.—A. C. Wickman Limited, of Coventry, has acquired Diaplastics Limited, the radio heating-equipment company, for which it has hitherto acted as sole world agent. A new board is to be formed by Mr. E. A. Hyde. Mr. A. H. Jarrard, the Hon. C. M. Maclaren, and Mr. G. C. Trowbridge.

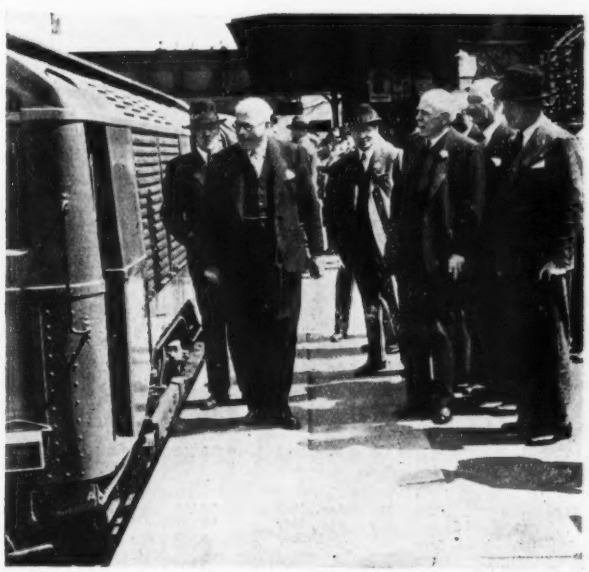
Lower Price of Nimonic Alloys.—During the war, when the rapid production of jet engines was a vital matter, the economics of blade production were only of secondary importance, but at the present time, when important commercial applications of the gas turbine engine are being envisaged, engine builders are studying more and more the costs of production. For this reason, the announcement by Henry Wiggin & Co. Ltd., makers of the Nimonic series of high-temperature alloys, of substantial price reductions in certain forms of these materials is of special interest. The price of machined bar in Nimonic "80" for turbine blade forgings has been reduced by 15 per cent. and there have been similar reductions in the prices of smaller sizes of forged section supplied for machining.

Antofagasta Preference Payment.—The directors of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. announce that it is proposed to pay on July 16 a dividend of 2½ per cent., less tax, being the balance of dividend payable in respect of the year 1936 on the 5 per cent. cumulative preference stock. A payment of 2½ per cent. on account of 1936 was made on the preference stock last February.

Midland Uruguay Debenture Stocks.—At a meeting of the 5 per cent. debenture stockholders of the Midland Uruguay Railway Co. Ltd. held on June 3, an extraordinary resolution was passed extending, until November 1, 1947 (with power for the trustee to extend this date to November 1, 1948), the existing conditions relating to the said stock. The resolution was contingent on the postponement of the rights of the 5 per cent. prior lien debenture stockholders of the Midland Uruguay Railway Co. Ltd. and of the 5 per cent. debenture stockholders of the Midland Uruguay Extension Railway Co. Ltd. The meetings of the holders of the two latter stocks held to pass the relative complementary extraordinary resolutions were adjourned for 21 days in the absence of a quorum. At the adjourned meeting of the 5 per cent. prior lien debenture stockholders of the Midland Uruguay Railway Co. Ltd. held on June 24, the extraordinary resolution extending the final redemption date was duly passed.

Powell Duffryn Carbon Products Limited.—A private company to be known as Powell Duffryn Carbon Products Limited has been registered with a capital of £500,000 in £1 shares. It will carry on the commercial production of carbon products previously conducted in an experimental and development stage at Battersea by Delanium Limited, a subsidiary of Powell Duffryn Limited. This development is subsequent to the recent acquisition by Powell Duffryn Limited of a freehold factory at Hayes, Middlesex, and the formation of a company entitled Powell Duffryn Technical Services Limited, which was announced in our March 21 issue.

Minister of Transport Inspects Greenford Extension



Two views during the Minister of Transport's trial run on the Central Line extension to Greenford. Left: Mr. W. M. Codrington, Director, G.W.R., with Mr. Alfred Barnes, Minister of Transport. Right: Mr. K. W. C. Grand, Assistant General Manager, G.W.R., Mr. Gilbert Matthews, Superintendent of the Line, G.W.R., Lord Ashfield, Chairman, L.P.T.B., and Mr. J. H. Brebner, Chief Public Relations & Publicity Officer, L.P.T.B., at North Acton

Railway Stock Market

The depressing news from Paris earlier in the week, the urgency of U.S. aid for Europe, and the serious position indicated by Mr. Dalton's schedule of proposed import "cuts" naturally have been reflected by a reactionary trend in stock markets. Values in all sections lost further ground, although brokers reported that no very heavy selling was in evidence, and that with the commencement of the new Stock Exchange account, the lower prices should tend to attract buyers. British Funds continued their downward movement, the terms of the new 2½ per cent. Southern Rhodesia loan (1965-70) which is issued at 99, having tended to increase the view that Mr. Dalton regards some easing of his cheaper money policy as inevitable in existing circumstances. British Funds recorded a further general decline with 2½ per cent. Treasury Bonds ("Daltons") down to 92, their lowest level since market dealings in this stock commenced in January at 99⅛; this stock, it will be recalled, was issued in redemption of Local Loans.

Industrial shares, more particularly those which led the recent upswing in markets, have reacted sharply, and shares of industries which will be affected by the import "cuts" fell back, although exceptionally textile shares were better on the increased efforts to be made to expand export trade. With the pending big capital issue by the Steel Company of Wales emphasising the nationalisation clouds gathering over the industry, iron and steel shares generally were lower, although in most cases declines have been moderate on balance, the prevailing view being that in the event of nationalisation, fair compensation would in most cases justify higher prices than those now current.

Richard Thomas & Baldwins responded to the higher dividend and Baldwins Holdings strengthened in sympathy. After responding to the bumper increase in the Anglo-Iranian profits and the raising of the dividend from 20 per cent. to 30 per cent., oil shares attracted profit-taking, sentiment being affected by the fact that petrol is on Mr. Dalton's list for substantial import cuts.

Movements in railway stocks have been relatively small and contrasted with the sharp declines recorded in most other sections of markets. Not that they have been immune from the general trend, because where changed, fractional declines were again recorded. Indeed, although illogically, as has been pointed out in notes on previous occasions, home rails have been inclined to be affected adversely by the declining trend in British Funds, despite the fact that they are now in effect gilt-edged stocks with the added protection afforded by the take-over prices already announced. In fact home rails can be regarded as a useful hedge against the prospect of any further fall in gilt-edged, and meanwhile they offer scope for capital appreciation during the next six months having regard to the extent to which current market prices are below the "take-over" levels.

The interim dividend decisions are being awaited with considerable attention, and if markets rally, they may give more life to the home railway market. This would be particularly the case if the interim decisions were accompanied by statements from the different companies indicating views as to the probable total dividends to which the junior or equity stocks will be entitled in respect of the current year, which will be the last before the nationalisation "take-over." It is true, of course, that in respect of 1946 some of the dividend payments exceeded actual earnings, and that in respect of 1947 there may not be any possibility of drawing on special sources, although the position appears involved.

Under the Transport Bill as now amended, however, there will be additions to revenue of the various railways for 1947, which as already pointed out in these notes, would be sufficient to make moderate extra payments on the various junior stocks. The position in regard to the remaining dividend payments is complicated, but the fact that this is so appears to make it desirable that stockholders should have some additional information or a general statement throwing light on the position.

Argentine rails have been lifeless, with small selling predominating and prices moving moderately lower as a result. The assumption is that the meetings of stockholders to ratify the scheme will have been held before the middle of September, when it is unofficially stated, the Argentine Government plans to take over the railways. Brazilian rails lost ground, including San Paulo which was down to 166. Great Western of Brazil fell back sharply and Leopoldina was lower again, while elsewhere, Central Uruguay issues also lost ground in the absence of any fresh rumours of future "take-over" possibilities. United of Havana 1906 debentures lost the moderate improvement which followed news of the directors' revised scheme.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1945/46	No. of Week	Aggregate traffics to date: Totals 1946/7	Aggregate traffics to date: Totals 1945/6	Aggregate traffics to date: Increase or decrease	Shares or Stock	Prices: Highest 1946	Prices: Lowest 1946	Prices: July 1, 1947
				£	£		£	£	£				
South & Central America	Antofagasta	834	22.6.47	47,510	+ 20,240	25	993,690	787,180	+ 206,510	Ord. Stk.	11	10¼	12½
	Arg. N.E.	753	21.6.47	ps.278,500	+ps.19,100	51	ps.16,333,500	ps.14,993,600	+ps.1,339,900	,,	17	5	11
	Bolivar	174	May, 1947	$115,230	+ $20,745	22	$564,878	$559,135	+ 85,743	6 p.c. Deb.	6½	5½	16½
	Brazil	—	—	—	—	—	—	—	—	Bonds	30	26	30
	B.A. Pacific	2,771	21.6.47	ps.2,350,000	+ps.452,000	51	ps.123,827,000	ps.115,189,000	+ps.8,638,000	Ord. Stk.	8¼	5½	11½
	B.A.G.S.	5,080	21.6.47	ps.3,157,000	−ps.327,000	51	ps.184,283,000	ps.179,514,000	+ ps.4,769,000	Ord. Stk.	16	10½	18
	B.A. Western	1,924	21.6.47	ps.1,357,000	− ps.25,000	51	ps.67,861,000	ps.61,428,000	+ ps.6,433,000	,,	19	9½	23
	Cent. Argentine	3,700	21.6.47	ps.3,220,255	+ ps.53,185	51	ps.164,129,315	ps.160,421,796	+ ps.3,707,519	,,	10½	7½	19
	Do.	—	—	—	—	—	—	—	—	Dfd.	6	4½	14
	Cent. Uruguay	970	21.6.47	43,812	+ 6,875	51	1,882,847	2,036,619	− 153,772	Ord. Stk.	8¼	3½	20½
	Costa Rica	262	Apr., 1947	33,865	− 83	44	286,765	286,820	− 55	Stk.	15	12	12
	Dorada	70	Apr., 1947	29,700	+ 400	17	119,200	115,275	+ 3,925	1 Mt. Deb.	102½	99½	104¼xd
	Entre Rios	808	21.6.47	ps.404,200	+ps.29,600	51	ps.21,824,300	ps.21,527,500	+ ps. 296,400	Ord. Stk.	9	5½	11
	G.W. of Brazil	1,030	21.6.47	24,900	+ 1,500	25	824,100	709,600	+ 114,500	Ord. Stk.	26/6	20/−	3
	Inter. Ctl. Amer.	794	May, 1947	$1,150,433	+ $174,294	21	$5,900,779	$4,854,614	+ $1,046,165	—	—	—	—
	La Guaira	22¾	May, 1947	$115,718	− $7,249	21	$572,761	$583,855	− $11,094	5 p.c. Deb.	70	58	£5½
	Leopoldina	1,918	21.6.47	65,110	+ 5,663	25	1,575,004	1,371,024	+ 203,980	Ord. Stk.	5	3¾	12
	Mexican	483	31.5.46	ps.1,464,000	+ps.459,100	22	ps.7,706,200	ps.13,441,600	+ps.5,220,000	Ord. Stk.	1¾	¾	¾
	Midland Uruguay	319	May, 1947	17,386	− 5,440	48	185,778	204,277	− 18,499	—	—	—	—
	Nitrate	382	15.6.47	10,912	+ 4,075	24	102,094	100,119	+ 1,975	Ord. Sh.	83/9	71/3	86/3
	N.W. of Uruguay	113	May, 1947	5,882	− 975	48	60,692	61,364	− 672	—	—	—	—
	Paraguay Cent.	274	20.6.47	₲55,574	− ₲2,736	51	₲3,214,295	₲3,076,004	+ ₲138,291	Pr.Li.Stk.	78½	60	50½
	Peru Corp.	1,059	May, 1947	158,756	+ 22,668	48	1,676,971	1,538,021	+ 138,950	Pref.	16½	8¾	9
	Salvador	100	Apr., 1947	c145,000	+ c6,300	44	c1,483,000	c1,393,700	+ c89,300	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	119½	52½	165½
	Taltal	156	May, 1947	3,700	− 95	48	44,715	36,995	+ 7,720	Ord. Sh.	22/6	15/3	20/−
	United of Havana	1,301	21.6.47	65,661	− 582	51	3,532,310	3,098,152	+ 434,150	Ord. Stk.	2	1¾	2¼
	Uruguay Northern	73	May, 1947	2,745	+ 673	48	15,510	19,422	− 3,912	—	—	—	—
Canada	Canadian National	23,535	May, 1947	9,638,500	+1,942,500	21	43,712,250	38,638,500	+ 5,073,750	—	—	—	—
	Canadian Pacific	17,037	21.6.47	1,519,750	+ 202,250	25	35,580,750	32,978,250	+ 2,602,500	Ord. Stk.	25¼	16¾	17¼
Various	Barsi Light†	202	Apr., 1947	29,295	− 3,007	4	29,295	32,302	− 3,007	Ord. Stk.	123½	111	110½
	Beira	204	Apr., 1947	80,157	+ 4,547	29	624,106	508,964	+ 115,142	—	—	—	—
	Egyptian Delta	607	20.5.47	16,535	− 433	9	83,647	81,873	+ 1,774	Frf. Sh.	9½	5	6½
	Manila	—	—	—	—	—	—	—	—	B. Deb.	75	60	69
	Mid. of W. Australia	277	Apr., 1947	18,404	− 1,260	39	167,312	172,148	− 4,836	Inc. Deb.	85	70	75
	Nigeria	1,900	Apr., 1947	354,384	+ 1,484	4	354,384	352,900	+ 1,484	—	—	—	—
	Rhodesia	2,445	Apr., 1947	525,116	+ 1,409	29	3,817,224	3,517,909	+ 299,315	—	—	—	—
	South African	13,323	31.5.47	1,211,000	+ 209,931	9	10,678,545	9,450,231	+ 1,228,314	—	—	—	—
	Victoria	4,774	Mar., 1947	1,241,516	− 68,175	39	—	—	—	—	—	—	—

† Receipts are calculated @ 1s. 6d. to the rupee